International Training Workshop on Integrated Coastal Management

Tampa, Florida, USA
July 15-17, 1995

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1. INTRODUCTION

The International Training Workshop on Integrated Coastal Management was held from 15-17 July, 1995 in Tampa, Florida, USA, just prior to the Ninth International Conference on Coastal and Ocean Management (18-20 July 1995).
The purpose of this workshop was to bring together coastal management practitioners from industrialized and developing countries in an open forum to share experiences and learn strategies for implementing Integrated Coastal Management (ICM).

The workshop objectives included reviewing progress in the implementation of Agenda 21, Chapter 17 'Protection of the Oceans, All Kinds of Seas, Including Enclosed and Semi-Enclosed Seas, and Coastal Areas and the Protection, Rational Use and Development of their Living Resources' of the United Nations Conference on Environment & Development (UNCED); providing an opportunity for participants to compare their own experience with ICM at national and local levels with other practitioners and program managers, both national and international; introducing approaches to ICZM that address a range of issues; and providing the opportunity to view a local level example of efforts to promote ICM. The program for the workshop is provided in Annex I. A total of 52 participants from 26 countries participated in the workshop. A list of participants is given in Annex II.

The workshop opened with welcoming remarks by the sponsors including the National Ocean Service (NOS) of the U.S. National Oceanic and Atmospheric Administration (NOAA), U.S. Agency for International Development, University of Rhode Island-Coastal Resources Center, Coastal States Organization, Intergovernmental Oceanographic Commission, United Nations Environment Programme, and the U.S. Country Studies Program.

The introductory portion of the workshop stressed the participatory nature of its format. It was designed to concentrate on the active exchange of ideas through breakout groups and discussions, rather than on formal presentations. To set the context for the workshop activities, the background of the UNCED and Chapter 17 in particular was reviewed. The UNCED had its roots in the 1972 UN Conference on the Human Environment, the first global environmental meeting that originated from the increasing international awareness that healthy societies or economies cannot be created with so much poverty and environmental degradation.

It was becoming increasingly apparent that development and environmental issues couldn't be separated and that the only way to assure humankind of a safer, more prosperous future was to deal with the two in a balanced manner. If human needs are to be fulfilled and living standards improved for all, the ecosystems upon which they depend must be better managed and protected.

In 1983, United Nations created the World Commission on Environment and Development (chaired by Gro Harlem Bruntland, Prime Minister of Norway). Its report four years later, "Our Common Future", warned that business as usual could not continue or the world would face unacceptable levels of human suffering and environmental damage. It called for a new era of "environmentally sound economic development" or "sustainable development" and the UNCED was planned to spell out how to achieve it.

From June 3-14, 1992, the world's environmental leaders convened again at the UNCED conference in Rio de Janeiro, Brazil. Agenda 21, an 800-page, 40-chapter Action plan, was one of the principal documents that resulted from the UNCED, outlining the pressing problems of today and providing guidelines for sustainably managing our global environment into the next century. It addresses a very wide range of issues, including the sustainable development of the marine environment. Chapter 17 declares that "States commit themselves to integrated management and sustainable development of coastal areas and the marine environment under their national jurisdiction," and outlines how accomplish this through a series of activities. How effectively these words have been translated into action and implementation was the starting point for the workshop discussions.

2. PERSPECTIVES ON UNCED'S AGENDA 21, CHAPTER 17

The initial session of the workshop was a discussion of the implementation of Agenda 21, Chapter 17. The participants were broken down into groups by region (Asia/Pacific, Africa, North America, Latin America and International Organizations) to discuss what progress has been made in the implementation of Agenda 21/Chapter 17 and the major impediments to its implementation. After a discussion period, each region presented their findings.

The Asia/Pacific group indicated that progress had been made through the creation of government institutions that work with ICM, and the drafting and implementation of coastal zone management policies, as well as sustainable development. However, impediments to this process were increased population pressures, lack of political will to develop programs, lower level institutional weakness, and failure to inform and involve local communities. The group also stated that progress was being made in improving data and information through state of the environment reporting, electronic mapping and geographic information systems, and regional information centers. The lack of trained people, insufficient infrastructure, and current data was impeding this progress. Advances are also being made through international and regional cooperation but delays are caused by local politics.

Progress in Africa has been made in the formulation of government agencies that manage coastal resource issues. These agencies have begun initial processes on formulating environmental plans, policies, legislation and monitoring. In most cases these have not reached implementation yet. Impediments to implementation include lack of trained personnel, inadequate communication, insufficient infrastructure for monitoring and data collection, lack of environmental awareness, poor law enforcement and inadequate funds.

In the U.S., managers have adopted national, regional and local tools for sustainable use of the coastal zone. National laws enacted include the Coastal Zone Management Act, Clean Water Act, and specific amendments that cope with Non-Point Source Pollution. Federal money is allocated through other programs in grants to states. The federal government also protects land through a series of national parks, marine sanctuaries, estuarine reserves and national wildlife reserves. A regional and local focus is emerging through management of ecosystems, and watersheds with increased citizen monitoring and water quality awareness. Barriers to this progress include the politics of management decisions, lack of public concern/awareness, the complex bureaucracies and the challenges to coordinate them, and gaps in the flow of information between science and management.

International organizations have had success in implementing Agenda 21 predominantly through enlisting a large number of countries in their programs; and by creating international laws and hosting conventions that help to resolve issues that cross political and ideological boundaries. However, the major impediments to this progress are a lack of coordination among donor countries—sometimes among the international organizations themselves—and a failure of implementation at the country level. Some nations view Agenda 21 as an impediment to their development.

3. U.S. EXPERIENCE: INTEGRATED COASTAL MANAGEMENT

In a panel discussion moderated by Mr. Clement Lewsey of NOAA's Office of Ocean and Coastal Resource Management (OCRM), four U.S. coastal managers gave presentations on the their experience of implementing coastal management programs.
Mr. Lewsey first gave an overview of the Coastal Zone Management Program (CZM) in the U.S. (please see
Appendix III)

U.S. CZM involves interactions of three levels of government: the federal, state, and local. Through NOAA/OCRM the federal government oversees different programs involving CZM, working with states to meet requirements of federal regulations and providing financial and technical assistance. The federal role also includes developing legislation and policy relating to CZM, and providing consistency through coordination between state programs and federal agencies. Individual states play the lead role by developing their own CZM programs that address the following objectives: 1) protecting wetlands and critical habitats, beaches, dunes, historic and cultural resources; 2) protecting life and property from coastal storms, chronic erosion, tsunamis, and other hazards; 3) acquiring, promoting, and enhancing public access to the coast; 4) protecting sites necessary for water dependent uses; and 5) protecting and restoring coastal water quality. To enforce their programs, states employ a wide array of tools including permitting for development, local planning and zoning, regional planning and policy development, land acquisition and low cost construction, public education and outreach, and research and data collection. Local governments may develop coastal programs or elements as deemed necessary.

Mr. Lewsey then outlined some of the success the 20 year old national CZM program has experienced. He indicated that coastal wetland and habitat loss had been reduced by at least 42% between 1974 and 1983. Development in hazardous coastal areas has also been reduced, helping to curb coastal erosion and property damage. Another note of success is increasing public access to the shoreline.

Wayne Beam, Deputy Commissioner of South Carolina's Department of Health and Environmental Control, Office of Ocean and Coastal Resource Management, presented the use of ICM in addressing coastal tourism issues. He indicated that coastal tourism has experienced rapid development in the last 10 years and has contributed to an increase in the South Carolina economy. Through ICM, the goal is to preserve natural resources through sustainable development by promoting responsible development. Coastal managers are working with federal, state and local governments that are all making decisions that affect one another. Coastal managers must also contend with large industry and an ever increasing population. Dr. Beam illustrated several strategies that

contributed to the sustainable management of South Carolina's coasts. These strategies involved governments working together with the private sector and finding solutions to problems including marina development, pesticides in stormwater runoff, over development of wetlands, and many others.

David Keeley, manager of the state of Maine Coastal Programs, discussed the binational Gulf of Maine project. The goal of the project is to maintain and enhance marine environmental quality and to allow for sustainable resource use today and in the future. This project illustrates the shared management of resources between two countries and different regional authorities, enlisting three U.S. states and two Canadian provinces in management decisions. The challenge to this project lies in overcoming these political subdivisions in the Gulf and working together to find common solutions. To help break down the various borders separating the people of the region, the project produced maps illustrating the shared watershed without political boundaries. Some of the conclusions drawn by Mr. Keeley that can be applied to ICM programs elsewhere included creating a forum to discuss problems/solutions, working collaboratively with various partners, setting economic and environmental goals, working in an ecosystem context, and integrating approaches.

The Coastal Program Manager for American Samoa, Lelei Peau spoke about taking into account traditional cultures when planning ICM. The island of American Samoa was established as a United States territory in 1889. American Samoa has a rich cultural history that is closely tied to the surrounding resources. Mr. Peau discussed some of the challenges and solutions to implementing the coastal zone management program in American Samoa. In American Samoa, the majority of the land is communally owned and developed, this system presented difficulties in implementing the US CZM program, considering the complication of different land tenure systems, cultural values, etc. To solve the problems associated with implementing an ICM strategy, the government brought in the local communities as much as possible, involving them in the early stages of policy development and decision-making. The citizens were asked to monitor and enforce the programs on their own and use the CZM program more as a facilitator than an outside enforcer.

Mr. Billy Causey, the superintendent of the Florida Keys National Marine Sanctuary, spoke to the group on his wide range of experiences in managing a marine protected area. The Florida Keys contain the only barrier reef system off the continental U.S. and are an area of intense use. The region supports approximately 6 million tourists every year who come to dive and fish in its waters. To cope with these intense pressures, the sanctuary has implemented management programs with education as a key thrust. Education is achieved through community outreach efforts, curricula development for local schools, distributing materials to the public, and conducting sanctuary tours. Other management programs, such as the use of mooring buoys and enforcement programs, have been enacted in order to conserve coral. These and other methods have proved extremely successful for management of the sanctuary.

However, Mr. Causey noted that the reefs are still facing environmental degradation due to pollution from stormwater runoff, poor sewage treatment techniques, and historical changes in freshwater flow into Florida Bay. Additional impacts on the sanctuary's marine habitats have occurred from boating and shipping activities. The process used for the development of a draft management plan and an environmental impact statement for the sanctuary was described briefly. The proposed use of marine zoning as a management tool was also described for the sanctuary.

Mr. Causey also discussed the South Florida Ecosystem Restoration Task Force, a coalition of federal and state agencies and the two tribes who are working to restore the environment of the region. He stressed the importance of the project, indicating it was the first comprehensive restoration plan of its type in the area and had the potential to reverse years of degradation due to population increase and agricultural practices. Management decisions will have a direct impact on the quality of the terrestrial environment of South Florida thus affecting the quality of water flowing out to Florida Bay and the sanctuary. Mr. Causey is chairman of the Interagency Working Group that answers to the task force.

4. CASE STUDIES: DEVELOPING COUNTRIES ADDRESSING COASTAL MANAGEMENT PROBLEMS IN ZANZIBAR, TANZANIA AND MOMBASSA, KENYA

For the afternoon session, the group was charged with examining case studies from Mombasa, Kenya and Zanzibar, Tanzania. The objective of this exercise was to illustrate how to address a coastal zone management issue in an integrated manner. Paul Akiwumi, Program Officer for UNEP, opened this section with a presentation of the Eastern African (EAF) Action Plan which is a Regional Action Plan implemented by UNEP. Regional Action Plans outline strategies that deal with management and development of the marine environment shared by several countries. These activities usually include environmental assessment, environmental management, environmental legislation, institutional arrangements, and financial arrangements.

UNEP serves as the Secretariat of the Action Plan for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region preparing national and regional strategies for adoption by governments. The EAF Action Plan involves nine countries (Comoros, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, Somalia, Tanzania, France[La Réunion]) and is working towards sustainable development and sound management of the region's marine and coastal resources. To accomplish this, the EAF Action Plan has established an institutional framework including regional and national bodies, a regional funding mechanism for programs, and has adopted a convention which provides the legal framework for the implementation of the Action Plan. Five of the countries in the region have ratified the convention. Regional priorities that have been defined by the governments include coastal management, pollution monitoring, contingency planning to combat pollution, coastal erosion, environmental impact assessments and database and a resources atlas.

Ms. Lynne Hale, of the U.S. University of Rhode Island's Coastal Resource Center, then provided a brief background to ICM and developing an ICM plan. Ms. Hale listed four attributes of ICM: 1) balancing needs for conservation and development while addressing crucial societal issues; 2) management structures using both regulatory and non-regulatory tools; 3) participation of all stakeholders (one who has an interest or claim on a resource) in the planning and governance process; and 4) an important focus needs to be on interactions and interdependencies among the different sectors involved. The final objective of ICM is sustainable development and is achieved through continuous cycling of policy review and implementation.

Mr. Abdulrahman S. Issa, Director of the Department of Environment, Commission for Lands and Development in Tanzania presented a summary of the case study on Chawaka Bay and

the Paje coastline. A pilot coastal management program has been initiated in this region in a step towards building a national ICM approach in Tanzania. Currently, about 45% of Zanzibar's population lives along the coast which also contain the highest growth rates. Chawaka Bay and its environs are a relatively rural area where coastal resources are of importance for fisheries, tourism, seaweed farming and mangrove harvests. The site is a microcosm of coastal issues in Zanzibar and will provide an example for future coastal managers.

Dr. B.A.J. Mwandotto, the Research, Planning and Development Manager of Kenya's Coastal Development Authority then gave an overview of the Mombasa case study and some of the coastal issues facing Kenya today. Dr. Mwandotto stated that tourism is now the most important element of Kenya's economy. This is forcing increased pressure on the natural environment, with particular impacts on coastal areas which are experiencing an accelerated population and development growth. Mombasa is an area of Kenya that represents this increased pressure, having undergone a population doubling in the last 15 years. ICZ is now being considered in Kenya to cope with coastal issues including tourism, fisheries, industry and housing. The Mombasa study can provide an example that future Kenyan coastal managers can drawn on for strategies and guidance.

The workshop participants were divided into four teams who were first asked to identify and prioritize coastal management issues for their case study. The teams from both studies listed a number of similar issues including: degradation of existing natural resources, including mangroves, corals and seagrass beds; the effects of tourism on the environment and social structures; the conflicts between traditional and new users of resources; social dislocation and inadequate participation in decision making; and lack of infrastructure.

The teams then identified stakeholders for each study. Stakeholders in both groups were largely identified as local populations, fishermen/women, religious groups, non-governmental organizations, hotel management, governments, etc. Teams were asked to choose one coastal issue and state a policy/objective to address it and recommend two actions necessary to achieve the policy/objective.

One of the major issues recognized by the participants was a lack of infrastructure. A key to successfully expanding infrastructure is the availability and quality of water. In response to this, an objective was to achieve the sustainable use of available water resources. To accomplish this, identified actions included determining available water quantity and quality, determining user demand and ecosystem needs, and preparing a water management plan that contained measures for distribution, conservation, recycling, education, desalinization, and monitoring.

Another idea was to provide options for displaced fishers and other users of natural resources. To achieve this, managers could incorporate the fishers into the planning process, relocate fishers further from coast to utilize under exploited resources, and/or provide appropriate alternative occupations and create new jobs.

In order to compensate for unplanned development of tourism, a suggestion was made to develop a sustainable tourism base-i.e. one that is economically profitable and that does not compromise the environment. This could be realized through adoption and implementation of an ICM plan, including comparative analysis, implementation of regulations, stakeholder consultation, and a comprehensive planning process. Another possible solution to curbing the impact of tourism on the

economy and environment would be to increase the use of locally produced agricultural, or other, products into tourist consumption. This could provide for increased employment, alleviating poverty, and decrease pressure on natural resources of large production areas. Some actions leading to this goal include: providing subsidies for local farmers (possibly through the U.N. Food and Agriculture Organization, etc.), enhancing marketing systems and increased education.

5. FIELD TRIP

To provide a look at ICM in practice, the participants visited Cockroach Bay Aquatic Preserve and other habitat restoration and mitigation projects in process in Tampa Bay. Before departure, managers of the area briefed the group on Tampa Bay's history and local examples of ICM. Tampa Bay is the largest open water estuary in Florida, encompassing the seventh largest shipping port (by weight) in the U.S., and is home to large phosphate mining, tourism and fishing industries. The major problems facing Tampa Bay are habitat loss and degradation (over 80% of seagrass in the bay has been destroyed) and water quality. Tampa Bay is also experiencing pressures from the intrusion of non-native plants, non-point source pollution, and stormwater runoff. Management of the bay involves many local, state and federal agencies and organizations and most importantly, citizen groups.

On the trip, the group traveled to Cockroach Bay Aquatic Preserve (CBAP) and four habitat restoration and mitigation projects for the Tampa Bay estuarine ecosystem. At Cockroach Bay, participants took a boat tour of the preserve, viewing mangrove forests and some of the life they support. The preserve, managed by Hillsborough County, is part of a Florida state system that sets aside bodies of water and preserves their aesthetic, biological and scientific values. CBAP comprises 8,583 of predominately pristine submerged and wetland areas within the bay and Little Manatee River. The preserve has instituted a seagrass recovery management plan designating areas in which boating traffic (the primary cause of seagrass damage) is limited or not allowed. This is to combat damage due to scarring from propellers. In addition, CBAP established enforcement and research programs for a two year period to further study and improve seagrass habitats. As a result of these studies, the Hillsborough County Board of County Commissioners has directed the Cockroach Bay Aquatic Preserve Management Advisory Team (CAPMAT); a local citizens group, C-BUG (Cockroach Bay Users Group); and the county aquatic preserve manager to work together to improve the existing program. Proposed additions to the program include a “citizen's watch” program; an educational program to include marking of areas outside the recovery areas and boater workshops; and volunteer efforts to assist ongoing research on growth stimulation.

The group then visited four other habitat restoration sites under the auspices of the Surface Water Improvement and Management (SWIM) Program around Tampa Bay. The SWIM Program was signed into law in 1987 to begin a process to clean up and restore polluted or threatened lakes, rivers, streams estuaries and bays in Florida. The Tampa Bay SWIM plan focuses on the restoration of estuarine habitats which have suffered significant habitat losses due to development. Twenty-one projects have been completed with 23 additional projects in progress. The sites visited were Cockroach Bay, E.G. Simmons Park, Delancey Creek and Pendola Point. (See Annex V for full description).

6. CONCLUSIONS

After the field trip the participants reconvened to discuss transferable lessons from what they had seen. The group concurred on the following major lessons to be taken into consideration by other countries:

1) Prevention of resource loss is crucial as the financial and time costs of trying to restore lost or degraded habitat (such as seagrass beds and wetlands) can be extremely high, possibly prohibitive in developing countries. In the case of Tampa Bay, the restoration projects average U.S.$62,000 per hectare (U.S.$25,101 per acre) to restore or enhance these habitats. However there are models of habitat restoration that have been implemented for very much less outside the US context. Mangrove restoration in the Philippines is a good example.

2) Not enough attention is give to the values lost from habitat destruction, such as lower fisheries production, poor water quality, etc. Those values don't tend to be quantified. If they were, it could help shift people's perspective regarding the cost-benefits of preventative, anticipatory management actions. We need to "re-gain our natural capital" as one participant articulately noted.

3) It is critical to change the way people think, to help them understand why it is important to protect coastal resources and their connection with social and economic well-being. Education should receive a high priority because constituency building is a long slow process. The education efforts of the Tampa Bay restoration projects were instructive because local people are recruited to plant the foliage and become personally invested in the outcome. Town meetings are also held to explain what is happening and why, and information is distributed through the local school districts.

4) Some of the best managers are local user groups—the field trip demonstrated some exciting examples of active local groups who are committing their own time to public education and outreach efforts; for example C-BUG (Coackroach Bay Users Group) the citizens action group that is trying to recover seagrass beds and improve environmental quality.

5) All countries have a common interest in maintaining the integrity of coastal habitat and sustainably manage their fisheries resources. As we deplete these important food supply sources in one area, additional pressure is created for other countries to make up the shortfall.

6) These projects and issues must be publicized better, journalists and reporters should be invited to future workshops.

7) "User fees" or "tourist taxes" should be considered as viable funding options.

8) With restoration projects, or coastal management projects in general, it is good to start small and learn by doing, don't take on too much at once. One of the restoration projects on the field trip started with one acre and grew as they learned what worked well and what did not.

9) Get the private sector involved early and enlist their cooperation. In the case of Tampa Bay, Cargill, a local phosphate-producing company, is now taking a active role in supporting habitat restoration efforts and reduction of pollutants discharged from its factory into Tampa Bay

10) The time and effort involved in multi-level, multi-agency coordination for integrated management is a worthwhile investment if sustainable development is to become a reality.

11) Citizens need to be cognizant of how their national economic policies can affect the environment and how they affect other countries. International corporations often have little incentive to stay in countries where environmental standards affect their profit margin. However, when those companies chose to leave, they take jobs with them. Economic, social and environmental issues can not be separated at the national or international level.

Workshop Evaluation

Feedback provided by participants to the workshop organizers was extremely positive and the following points were offered for future workshops of its kind:

- The workshop was considered extremely successful and should be repeated in the future
- For the first time U.S. managers had been incorporated in the workshop and their participation added significantly to a two way learning process
- Consideration should be given to extending the workshop to a full three days
- Consider using case studies at different stages of development, so that a focus may be put on implementation as well as planning
- Focus on problems and strategies in the case studies, for the benefit of practitioners
- Participants should be asked to prepare "country study reports" from their own countries as a means of showing the problems that exist and how they are being dealt with
- There should be a reception on the first evening, to permit participants to get to know each other better

ANNEX I - AGENDA

WORKSHOP AGENDA:
SATURDAY, JULY 15, through MONDAY, JULY 17, 1995:

Saturday July 15, 1995
4:00-7:00 Workshop Registration: Esplanade Room 1, Hyatt Regency Tampa

5-5:30 Welcoming Remarks by Workshop Sponsors:
National Ocean Service
U.S. AID/University of Rhode Island, Coastal Resource Center
Coastal States Organization
Intergovernmental Oceanographic Commission
U.N. Environment Programme
U.S. Country Studies Program

5:30-6:00 General Introductions of Workshop Participants

6:00-6:15 Workshop Structure/Methods & Objectives: Mr. Brian Crawford & Brian Needham, University of Rhode Island, Coastal Resources Center

6:15-6:30 Background to Agenda 21 and Update: Ms. Katie Ries, NOAA

Dinner on your own

Sunday 16 July 1995
8:00 - 8:30 Coffee/Tea and Workshop Registration
8:30-8:45 General Announcements and Seating for Break-out Groups,
(breakout rooms available: Garrison 1, 2, 3; and Esplanade 2,3)

8:45-9:30 Participant Perspectives on UNCED's Agenda 21, Ch. 17 , Progress

Participants will be split up into groups (5 or 6 by region) to discuss progress made in the implementation of coastal programs as a result of Agenda 21, and their issues of concern (a set of questions will be distributed in advance to participants). Each group will select a spokesperson to present their output to the combined groups. Selected CRC staff and other speakers/practitioners will facilitate this session and guide discussion and comments among participants. A rapporteur will record group outputs.

9:30 - 10:00 Groups present findings/Combined Group Discussion

After regional group presentations (40 mins), there will be general group discussions of the issues raised and brainstorming on ways and means to overcome current problems. Suggested strategies will be recorded on flip charts by a facilitator.

10:00-10:15 Break

10:15 - 11:45 Panel Discussion: The U.S. Experience - in a moderated discussion, a panel of Fed-

eral and State participants will react to the morning's output and discuss the U.S. experience of implementing integrated coastal management programs.

PANEL:	Moderator: Clement Lewsey, NOAA, Office of Ocean and Coastal Resource Management
Wayne Beam, SC	Addressing coastal tourism through ICM in South Carolina;
Billy Causey, FLKNMS	Effectiveness of marine protected areas (Marine Sanctuary Program/National Estuarine Research Reserves) in addressing habitat protection issues
David Keeley, ME	Regional/bi-national issues in Gulf of Maine demonstrating collaboration with another country on shared resources;
Lelei Peau,	Island experience and dealing with traditional cultures American Samoa

11:45-12:45 Lunch

12:45-1:15 Introduction to the Case Study (a detailed schedule for the case study will be provided) Presentation: A Process for Addressing Coastal Management Problems: definitions and tools. Lynne Hale, University of Rhode Island, Coastal Resources Center

1:15 - 3:15 Part 1 of participatory case studies of actual coastal sites in developing countries actively engaged in an ongoing coastal initiative (Zanzibar, Tanzania, and Mombassa, Kenya). Issues to address include: degraded water quality/sanitation in urbanized areas, habitat degradation (mangroves and coral), fisheries, marine reserves, tourism and user conflicts. Focus will be on issue definition and objectives.

3:15-3:30 Break

3:30-5:30 Continue with Case Study Part 2, emphasis on planning & implementation.

6:00-8:00 International Reception for workshop participants cohosted by the Coastal States Organization

<u>Monday 17 July</u>
8:00- 8:45 Coffee/Tea

8:45 - 9:15 Overview of Cockroach Bay and Tampa Bay

9:30-3:00 Field Trip to Tampa/Cockroach Bay - please see attached field trip flier

Managers associated with various Tampa Bay programs will provide a brief overview of Tampa Bay. Of particular interest is Cockroach Bay, the site of a current large-scale restoration project. The managers will spend a half hour preparing participants for the field trip by telling the

"Tampa Bay story," and by addressing local examples of integrated coastal management. The presentations will include a recognizable suite of issues that will be addressed during the workshop such as: process and tools employed, issue identification, governance issues, role of science, financial support required. Tampa Bay addresses many of the same issues that will be dealt with in the workshop case study, and reference to the field trip will provide a very powerful tool. This will provide workshop participants with a local U.S. case study for comparison and reference.

3:15-4:00 Wrap-up panel (nominated regional representatives): summary and reflections (from a regional perspective), general questions and answers, and discussion.

4:00-4:15 Concluding remarks by Sponsors.

4:15-5:00 Opportunity for individual discussions.

OPTIONAL CZ95 EVENT:

7-9:00 PM** "Florida Town Meeting," at the Convention Center:

This is a first-hand chance to experience a public meeting and discussion amongst local residents, members of the CZ95 conference and invited local and national experts, member of the press, and others. Issues of importance around the coast will be addressed. Sponsored by the League of Women Voters and the Florida Coastal Management Program on behalf of CZ95.

** A group will meet at 6:30 PM in Hyatt lobby near the Registration Desk to walk or take a bus together to the Convention Center.

ANNEX II - PARTICIPANT LIST

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ANNEX III - OVERVIEW OF U.S. CZM PROGRAM

Dr. Clement Lewsey's
NOS/Office of Ocean and Coastal Resource Management

THE FEDERAL/STATE CZM PARTNERSHIP

• The Federal CZM program envisioned by the CZMA defines:

o Federal Role— NOAA provides guidance on elements of state CZM programs and oversight of state program effectiveness.

o State Role— States have the lead role in developing a comprehensive and unified state program based on state laws.

o Local Role— Local governments may develop local coastal programs or elements.

WHAT IS THE CZM PROGRAM? - THE FEDERAL ROLE

• OCRM plays three primary roles in coastal management:

* Oversight

* Advocacy

* Technical Assistance

• Oversight

- Section 312 Evaluations - evaluate approved CZM programs every three years using a process open to all interests. Written findings detail accomplishments and specific actions and recommendations for program improvement.

— Section 6217 Program Development - with EPA partners, work with states to meet requirements of Coastal Nonpoint Pollution Control Program— Programs due in July 1995.

- Section 305 Program Development - work with Texas, Georgia, Ohio, Minnesota, and Indiana to develop CZM programs which will meet the requirements of the CZMA.

• Advocacy

- Legislation and Policy Development - review and influence bills in Congress, e.g., Clean Water Act and regulations developed by other Federal agencies. Coordinate with relevant Federal programs, e.g., EPA's NEP program.

- Federal Consistency - encourage coordination between state CZM programs and Federal agencies, mediate disputes between state and Federal agencies and educate Federal agencies about their consultation and consistency responsibilities under the CZMA.

- Report to Congress and Other Information/Outreach promote understanding of the CZM program through Biennial Report to Congress as well as through other outreach efforts.

• Oversight

- Financial Assistance - negotiate annual state work programs to ensure the best use of Federal CZM funds to meet 312 recommendations, address emerging issues, and develop new coastal nonpoint and new CZM programs.

- Federal Consistency - monitor state conduct of Federal consistency reviews, particularly when a state objects to a Federal action, and make decisions on state requests to review Federal licenses and permits not listed in a state's CZM program.

• Technical Assistance

- Technical and Information Assistance - develop technical reports on CZM issues, respond to state requests for specific information on particular coastal management issues, and provide information to states through the annual program managers meeting and smaller regional workshops.

- Ongoing Trouble Shooting - mediate disputes between CZM agencies and other state or Federal agencies, and advise states on the potential impact of proposed state legislation or rules on CZMA requirements.

WHAT IS THE CZM PROGRAM? - THE STATE ROLE

• Coastal states play the lead role in coastal management by developing comprehensive CZM programs to address the following objectives:

-protecting wetlands and critical habitats, beaches, dunes, historic and cultural resources;

- protecting life and property from coastal storms, chronic erosion, tsunamis, and other hazards;

-acquiring, promoting, and enhancing public access to

the coast; - protecting sites necessary for water dependent uses; and protecting and restoring coastal water quality.

• State CZM programs use a wide array of tools to enforce their programs:

-permitting (e.g., for wetlands alteration, coastal development);

-local planning and zoning (e.g., ordinances for building setbacks or wetlands buffers);

-regional planning and policy development (e.g., plans addressing cumulative and secondary impacts, ocean resources);

-land acquisition and low cost construction (e.g., acquisition for public access and habitat protection);

-public education and outreach (e.g., Coastweeks, beach cleanups, school curricula, newsletter); and

-research and data collection (e.g., habitat inventories, wetlands mapping).

ACCOMPLISHMENTS

• Coastal Wetland and Habitat loss due to dredging and filling has been reduced by at least 42% between 1974 and 1983 due, in large part, to strong state regulatory programs.

• Development in hazardous coastal areas has been reduced— 13 states have building setback programs to keep development from eroding shorelines. States also work with local government to update local land use plans to direct development away from hazardous areas.

• Access to the shoreline has been increased through regulatory and other means:

-between 1985-1989,359 new or improved public access projects were developed and 3,400 acres of coastal habitat were acquired with section 306A funding;

-most states have extensive signage programs noting key points of public access; and,

-several states such as North Carolina and California have developed advanced access programs to develop a

broad range of access from neighborhood walkways to regional beach access facilities.

NEW DIRECTIONS AND OPPORTUNITIES FOR COASTAL ZONE MANAGEMENT

• 1990 Reauthorization

* §6217 Coastal Nonpoint Pollution Control Program

- Partnership between EPA and NOAA and State CZM and Water Quality programs.
- Combines land use and regulatory experience of CZM program and technical expertise of Water Quality programs.
- State programs due July 1995— must be on the ground by 1998.
- Requires enforceable policies for 6 major sources of NPS pollution.

* §309 Enhancement Program
- New incentives to State CZM program in eight enhancement areas:

- coastal hazards
- public access
- wetland protection
- management of cumulative and secondary impacts
- ocean management
- marine debris
- special area management planning
- energy and government facility siting

-States undertook a rigorous public assessment process to identify high priority needs in their state and are implementing multi-year strategies to address needs.

• Opportunities for Strengthening State CZM-NOAA Partnerships

* Coordination of NOAA technical and data capabilities to support state coastal watershed, growth management, and special area management plans.

- NOAA photogrammetry support of state shoreline mapping efforts
- ORCA support for California Monterey Bay Initiative (integrates CZM. Sanctuary, and a Reserve Site)

* Consideration of state CZM management needs in developing agenda for the Charleston Center for Coastal Ecosystem Health.

- Coastal Management Information Transfer
- Coastal Management Training and Resource Center

* Integration of state CZM programs and NOAA's authorities and programs.

- Florida Keys Marine Sanctuary
- NERRS research support of CZM and NPS management needs.
- Use of Coastwatch funds to map submerged aquatic vegetation.

• 1995 CZMA REAUTHORIZATION

Possible Topics:

- Ocean Management

- Coordinated Hazards Program with FEMA

- Special Area Management for Ports, Watersheds, Etc.

- Refinement of Coastal Nonpoint Pollution Program

— Additional Funding and Time for New CZM Program States

ANNEX IV - CASE STUDIES

MOMBASA, KENYA

Country Background

Prepared by

USAID International Coastal Resources Management Project
Coastal Resources Center, The University of Rhode Island

In Cooperation with

Coast Development Authority, Kenya
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Kenya's coastal environment and its valuable resources are increasingly under pressure from human settlements and related development. Important economic activities range from tourism to trading to food production. Tourism and fisheries in particular depend on the coast's environmental quality. Only a healthy environment will be able to sustain these economic uses into the future.

The coast supports nine percent of the national population. This population continues to increase with time, rising from 1.34 million in 1979 to 2.15 million in 1993, a 60 percent increase. This trend of population growth along the coast is expected to increase, placing additional pressures on the coastal environment and existing infrastructure. Population pressures are particularly great in urban town centers such as Mombasa which has experienced a doubling of population in the last fifteen years.

As population increases, so does the diversity and intensity of uses. Mombasa alone represents 16% of the total wage earnings for the country. It is clear that the coast is vital to the overall economic health of the country.

The coast's increased national importance has not come without cost. Once pristine natural resources are being degraded at an increasing rate, new economic activities create urbanization and change the way in which people use the resources. More people and activities result in intensifying use conflicts and pressure on the resource base.

To address these issues and effectively manage the coastal environment to minimize resource degradation and promote the sustainable development of coastal environs, a comprehensive, integrated, policy framework is needed. Integrated coastal management (ICM) provides a holistic multi-sectoral approach to management and provides the necessary framework to address national coastal management issues.

To build momentum towards a national integrated coastal management approach and develop the necessary experience, a modest pilot coastal management initiative was started as an experiment which focuses on a small part of the Kenya coast in the Mombasa district -- the coastal strip encompassing the Nyali-Bamburi-Shanzu shorefront areas and the estuarine waters of Tudor Creek. Addressing issues in the area will help Kenya gain critical experience in coastal management that can, with time, be applied more broadly to the entire national coast.

The Bamburi-Nyali-Shanzu Site

The coast in the vicinity of Mombasa was once primarily an idyllic coastal environment, with pristine beaches, coral reefs and mangrove forests sparsely populated with fishing villages. Today, new economic activities continue to replace traditional ways. This change has been dramatic. Mombasa, which is essentially the dispersal point of coastal tourism, is described in historical accounts as being a small center with only 23,000 people in 1896. In 1946, Nyali Beach hotel was built in the area to mark the beginning of a great economic boom - a tourism based economy. The coastal strip just north of Mombasa has seen a tremendous expansion of beach hotels, high priced residential development, industry, and squatter settlements, concentrated between the beach and the main highway. The construction of a permanent bridge from Mombasa town to the north coast has contributed greatly to this accelerated expansion. The number of hotels and beds has continued to rise with hotels having evolved in both capacity and design. Nationally, trends from the last decade show that the tourism sector has been steadily growing, almost doubling between 1980 and 1989. As the local economy grows, important sectors have continued to shift from fishing, agriculture and mangrove harvesting, to tourism and industry. These new economic opportunities have attracted more and more people to the narrow coastal strip. This has resulted in an area that continues to be urbanized at an increasing rate.

Tourism

The economy of the area commonly referred to as the north coast, is dominated by tourism. In 1993, the north coast alone contributed 24 percent of the coastal tourism industry earnings. Tourism and related sectors in the area are one of the largest employers for the area. Estimates conservatively suggest that at least 12,700 people are employed in north coast hotels. In addition to the direct employment offered by the hotels, other tourist dependent activities provide employment for 126 curio sellers, 74 registered safari sellers, 52 massage operators and 163 boat operators, among many others within restaurants and other service sectors. The number of on-thewater recreational activities continue to increase with sailing, windsurfing, jet skiing, snorkeling, glass bottom boats all active in the area between the reef crest and shoreline within the park and reserve. There is only one public access point remaining in the area. Previously, there were numerous access points - which locals used to use - which have been closed as hotel development progressed. Vandalism and cleanliness of the public beach and toilets at Kenyatta Beach is a problem. In addition, crime along the beach has become a problem, particularly theft of tourist property. Tourists also complain about harassment on the beach by curio sellers. Many hotel owners have constructed seaways to protect their property from beach erosion.

Fisheries

The establishment of the marine park has excluded fishermen from a large area of their traditional

fishing grounds. The number of fishermen has declined dramatically to only 30 individuals at present, from 100 before the park was established. Shorefront development has also displaced fishing villages as land has been sold for hotel and residential development. While catch per fisherman improved after the marine park was established more recently, catch rates have declined to levels prior to the creation of the park. Fishermen complain about scantily clad foreign women on the beach, and about jet skiers damaging their fishing gear.

Industry and Housing

While the majority of the tourism development is located directly along the beach, high income residential housing is the next tier of development away from the water in many areas along the north coast. Close to the main highway, service industries, low income and squatter housing is intermixed in high density development. A large cement factory and a nature trail are located inland of the highway.

Water and Sanitation

Piped water and groundwater are major sources of the drinking water supply. Residents frequently complain about water shortages and poor service regarding garbage disposal. Most sewage is disposed of through soakpits septic systems and latrines. There are no sewers in the demonstration site. Many wells are contaminated by fecal coliforms, as is the surface water in Tudor and Port Reitz Creeks. Thirty to forty percent of Mombasa Island is sewered but the treatment plant is inoperable because of lack of maintenance.

Mombasa Marine Park And Reserve

The Mombasa Marine Park and Reserve were gazetted in 1986. The boundary of the park runs from Mtwapa Creek to Bamburi Beach. The marine reserve runs from the edge of Mtwapa Creek to Tudor Creek. The marine reserve is approximately 200 Km2 and the marine park is approximately 10 Km2. The Kenya Wildlife Service maintains patrols of the Marine Park. Significant enforcement in the park started in 1990. Fees (US $1) are charged for entrance to the park.

Habitats

Mangroves - There are significant stands of mangroves in Tudor, Mtwapa, and Port Reitz Creeks. While there has not been significant loss of acreage, the forests have been severely degraded and are now considered overexploited and impacted from oil pollution from the port. Mangroves are now only used for selective harvesting. The communities that previously depended on mangrove systems now depend on other economic sectors for their livelihood.

Coral Reefs - While coral reef condition in the marine park has improved, there is localized damage in heavily utilized snorkeling spots. Coral condition in the marine reserve remains poor.

Beaches - Development and increased use has also affected rare and endangered species of sea turtles which previously used the sandy beaches in the area for nesting. Seawall construction has also impacted on turtle nesting. Erosion is evident in many locations.

Seagrasses - Information is limited on the extent and condition of seagrasses in the area. There is concern among scientific groups over the impact of pollution on seagrass beds.

CHWAKA BAY - PAJE, ZANZIBAR

Country Background

Zanzibar' s coastal region is of critical importance to the nation. It is expected to make a significant contribution to the nation' s future development, while continuing to sustain the traditional activities that have provided the necessities of life to coastal residents for generations. While information is scarce, it is thought that Zanzibar' s coastal and marine resources are largely intact and in good to excellent condition, especially when compared to the coastal resources of neighboring countries. Coastal resources are, however, coming under increasing pressure.

About 45% of Zanzibar's total 1993 population of 745,299 live in 63 villages and settlements found along the coast. Zanzibar' s current growth rate is concentrated along the coast. Zanzibar' s economy is coastal dependent, with traditional economic activities including fishing, seaweed farming, mangrove pole harvesting, and agriculture, and this dependence is likely to increase as tourism continues to grow.

Zanzibar' s critical marine and coastal habitats include coral reefs, mangroves, seagrass beds, and beaches. Information on the extent, condition and use of these habitats is lacking. The nation has started the process of protecting a few of its most extraordinary marine and coastal habitats, such as Misali Island. However, the extent of marine conservation measures to date has been quite limited.

As coastal areas become more populated and development activities become more intense, it is increasingly likely that the natural resource base will be degraded. Development pressures can have significant impacts on the nation' s economy and social fabric, and are of increasing concern to Zanzibarian citizens and the government. Pressure is coming from over-utilization and intensification of use caused by increasing populations, poorly sited and executed private sector coastal tourism development, poorly coordinated sectoral government programs and activities, and the rapid pace of development which is proceeding faster than the effective governance structures and strategies that are needed for their management. If this situation continues, significant and widespread resource degradation is likely to occur.

Currently, the population which will be most affected by coastal resource degradation and declines - the residents of traditional coastal communities - are not full partners in planning the type, amount or the conditions under which development will proceed in their areas. As degradation increases, the resources on which they depend for survival will show reduced productivity, and will be increasingly shared with other users. Resource degradation will also affect the tourism industry. High quality tourists, which Zanzibar actively seeks, demand excellent environmental quality. Damaged reefs and degraded water quality will not draw their interest.

The National Environmental Policy, which was adopted in 1992, includes a section on Coastal Management. The policy's aim is to "develop a programme of Integrated Coastal Zone Management, within the framework of the overall land use plan." The Department of Environment (DoE) is also in the early stages of formulating environmental legislation, one component of which will likely include coastal management. These important first steps provide a framework and impetus for national and local coastal management initiatives. The challenge now is for government, in partnership with the people who depend on the resource base for their livelihood, to operationalize and effectively apply these broad policy guidelines both locally in areas facing significant coastal issues, and nationally, through the national development plan.

Chwaka Bay

To build momentum towards a national integrated coastal management approach and develop the necessary experience, a pilot coastal management initiative was started. This modest experiment focuses on a small part of Zanzibar' s coast -- the coastal strip encompassing Chwaka Bay and the Paje shoreline -- a relatively rural area.

- Its coastal resources are important both at the local and national level for fisheries, tourism, seaweed farming and coastal thicket and mangrove harvests.
- The site contains critical coastal issues that are found in many other areas of Zanzibar so that management approaches and techniques developed here will be useful in other locations.
- Eminent local people recognize that changes are occurring and envisage problems unless necessary actions, defined in consultation with local people, are taken.

Addressing these issues in one small area allows resource managers to gain critical experience in coastal management that can, with time, be applied more broadly.

The demonstration site is located on the southeast side of Unguja Island about 20 km from Zanzibar town. It encompasses the coastal area of Chwaka Bay and the Michavi Peninsula as far south as Paje (see site map). There are seven small villages in the area with a total resident population of about 10,300. This population is projected to rise to approximately 12,000, an increase of nearly 17%, by the year 2000. Basic socioeconomic data on the site's residents is lacking.

Local Economy

The economy of Chwaka Bay and the Southeast Coast is expanding from near total reliance on fishing mangrove/coastal thicket harvesting and marginal agriculture to include new economic activities: tourism development, seaweed farming and the expansion of small scale business. This change presents new opportunities as well as threats to the people, their culture, and resources of the Chwaka Bay and Southeast Coast region. Both traditional and new activities depend on the region's coastal resource base.

Traditional activities, which form a bulk of the local economy of each village, include fishing, mangrove harvesting, agriculture, beekeeping, and rope making with the mix being different in each village. In most of the villages, fishing is the dominant activity.

Tourism

Tourism is growing rapidly in the area. In 1994 only six hotels were operating. By the year 2000, this number could reach 19. This will provide approximately 3,500 tourist beds, which is an increase of about 90% above what is currently available. At present, most hotels are relatively small guest houses, along with a few of the larger hotels, all of which cater to a predominantly European clientele. In some locations, hoteliers have constructed makeshift seaways from coconut trunks to combat beach erosion. The rapid growth in tourism will create new opportunities such as direct employment by hotels, new markets for fish and agriculture products and indirect employment in tourist dependent small businesses. Tourism growth will also place new demands on natural resources and compete with villagers for land, potable water and sea-space. These forces will likely result in an increased role of tourism in the local economy. Villagers face this new future with both optimism and concern.

Seaweed farming is also a new industry which utilizes the inshore reef areas. Many of the seaweed farms are adjacent to new and planned hotels. Already, there are conflicts arising between residents and hotel owners over use of the beach for drying seaweed and the placement of seaweed farms in the nearshore by local women. Seaweed farming has created an important economic activity for women, who traditionally have not had such income earning opportunities.

Habitats

Mangroves Chwaka forest is the largest mangrove stand on Unguja Island, containing 47% of the island's mangroves, and essential to the productivity of Chwaka Bay. Between mangrove dependent fishing and other uses, about 49% of the area' s household income is attributed to the presence of the mangrove ecosystem in Chwaka Bay (Nasser, 1994).

Coral Reefs: The area has an extensive fringing reef along the coastline. The reef extends seaward approximately 1-2 kilometers. This reef plays several important roles. It attracts and allows for a high species diversity of flora and fauna. This is especially important to the reef dependent fishery. The reef dissipates wave energy built up over a long fetch, thus it protects the shoreline from erosion. It also is important to the tourism business, providing opportunities for snorkeling, diving, sport fishing and sightseeing.

Sandy Beaches: The area is known for its sandy beaches, especially along the exposed east coast. Three species of marine turtles - green, loggerhead, and leatherback- have been reported in the area with nesting beaches along much of the shore.

Seagrasses: Sea grasses cover extensive areas of Chwaka Bay in both pure stands and intermixed with different species of algae. They are an important component of the near shore system and provide feeding space, breeding grounds and shelter to a wide range of marine animals. Healthy seagrass beds help grip sediments together by their extensive root system which helps prevent erosion. The nearshore seagrass areas are also the location of seaweed farms.

ANNEX V - FIELD TRIP

COCKROACH BAY AQUATIC PRESERVE FIELD TRIP

HABITAT RESTORATION AND PRESERVATION FOR TAMPA BAY

Tour Guides: Gary Lytton and Shelly Allen (Florida Dept. of Environmental Protection)
Ray Kurz (SWIM Dept., S.W. Florida Water Management District
Rob Heath and Nick Toth (Hillsborough County ELAPP)
Fred Webb, Pat Cannizzaro, and Dr. Nick Ehringer (Hillsborough Community College)
Bill Durrance and Gus Muench (Cockroach Bay User's Group)

Welcome to a field trip visiting the Cockroach Bay Aquatic Preserve and five habitat restoration and mitigation projects for the Tampa Bay estuarine ecosystem: Cockroach Bay, E. G. Simmons Park, Delaney Pop-off Canal, Pendola Point, Northeast McKay Bay. (Note: this narrative deals solely with restoration and mitigation projects for Tampa Bay; other materials will be distributed concerning the Cockroach Bay Aquatic Preserve.) We will be visiting projects designed and constructed under the auspices of the Surface Water Improvement and Management (SWIM) Program of the Southwest Florida Water Management District (SWFWMD), the Cockroach Bay Restoration Alliance (COBRA), the Florida Department of Environmental Protection (FDEP), and the Tampa Port Authority. Project sites vary in age of maturation, ranging from 0 (unrestored) to 4 1/2 years old. The following narratives summarize various aspects of each project site (note separate handout for Pendola Point). During the tour, please feel free to ask your tour guides for details not provided in their presentations or in these narratives. We hope you enjoy this field trip and learn about management and restoration approaches for the Tampa Bay ecosystem. Please refer to your project site map for the location of each project.

General Background of the SWIM Program

The SWIM Act of 1987 identifies Tampa Bay as a priority water body in need of restoration and preservation. Restoration of estuarine habitats of Tampa Bay is one of the top priorities of the Tampa Bay SWIM Plan. Since 1988, the SWIM Program of SWFWMD has implemented a series of habitat enhancement/restoration projects for Tampa Bay, the largest open water estuary of the state of Florida. The 400 square mile estuary located along the mid-western coast of Florida has suffered significant habitat losses due to development: historical seagrasses estimated at 31,000 ha (76,570 acres) vs present day estimates of about 6000 ha (14,820 acres, an 81% decline); historical intertidal wetlands estimated at 10,053 ha (24,831 acres) vs present day estimates of about 5700 ha (14,079 acres, a 43% decline). SWIM projects (coupled with projects of FDEP, local governments and environmental organizations) are efforts to reverse habitat losses.

Projects have emphasized intertidal oligohaline habitats, each project typically providing a mosaic of habitats, a condition mirroring natural systems; projects typically include uplands, transitional habitats, high and low marshes, mangrove forests, mud flats, tidal channels, open water bodies, and island

hammocks. Twenty-one projects have been completed with 23 additional projects in various stages of completion. These progressive, interdisciplinary projects typically combine habitat attributes (including improved water quality by enhancing tidal flushing and/ or water circulation) with stormwater treatment. Projects have and will continue to be constructed predominantly on public lands and represent cooperative efforts between SWFWMD and a local government or state agency. Several SWIM projects under development involve cooperative development and implementation of projects on private lands; as appropriate, SWIM will continue to pursue use of private lands for restoration if various criteria is met concerning the public's and ecosystem's best interests (see list below).

Each project involves a year or more of planning, permitting, and implementation, with total project costs averaging $62,000 per hectare ($25,101 per acre) of enhanced/restored habitat. Project sizes have varied from 0.06 to 5.66 ha with projects-in-planning ranging up to more than 80 ha. Significant construction cost savings have begun to be realized by use of District crews, a move which should dramatically reduce dollar per hectare expenses.

Project Development

Prior to implementation of any restoration project, an interlocal/ agency agreement is executed between SWFWMD and the respective cooperator. These agreements represent the commitment of a local government or agency to cooperatively develop and implement projects with the District's SWIM program. For habitat enhancement/ restoration projects, local government/agency matching moneys and divisions of project responsibilities have made projects feasible while making projects fiscally attractive for the SWIM program. Each cooperative project represents an effort to stretch SWIM dollars as far as possible, thereby allowing a greater number of projects to be implemented. Accordingly, the greater the number of enhancement/restoration projects, the better the water quality and availability of habitats for the biological communities of Tampa Bay.

Originally, project sites were/are identified through four mechanisms:

1) listed in the December 1989 “Preliminary Site Assessment Report - SWIM Tampa Bay Habitat Restoration Program”;

2) listed in the January 1991 “Preliminary Site Assessment Report - SWIM Tampa Bay Habitat Restoration Program”;

3) nominated by a local government;

4) listed in updates of the SWIM Management Plan for Tampa Bay.

For each proposed site, various factors are considered prior to the final selection of priority sites. These factors include:

1. Ownership of parcel (public vs private)

2. Size of parcel

3. Permittabilit y

4. Access (public and construction access)

5. Habitat complexity/diversity (after project)

6. Cost/benefit ratios

7. Cooperative involvement; if so, level of assistance to be provided by cooperator

8. Location within Tampa Bay ecosystem

9. Public visibility

Opportunities to work cooperatively with local governments and agencies are considered excellent time and cost efficient mechanisms to accelerate progress implementing habitat restoration components of the Tampa Bay SWIM Plan. For each enhancement/restoration project, SWIM has coordinated with Tampa permitting staff of the U.S. Army Corps of Engineers, FDER (FDEP) SWFWMD, and, as appropriate, County environmental agencies. Permitting staff have continually been involved in the development and implementation of all projects (e.g., site visits, review of preliminary plans, etc.). In addition, monthly meetings with agency permitting staffs are conducted to provide continuous updates and reviews of SWIM projects.

Projects are designed and constructed to maximize habitat diversity, creating "habitat mosaics" as complex as practicable. Historically, the bay's ecosystem was a combination of many different habitats (i.e., uplands to emergent wetlands to subtidal communities); environmental impacts over the last 150 years have significantly reduced major components of these mosaics (e.g., seagrasses, emergent wetlands, uplands, etc.) Enhancement of existing habitats, restoration of lost mosaics, and replacement ("creation") of lost habitats are major elements of the Tampa Bay SWIM Plan. To date, all completed projects are being exceptionally successful in enhancing/restoring/replacing damaged/lost habitat mosaics. These successes are due to proper site selections for projects, innovative, functional designs, and proper yet flexible construction management of the project.

SWIM recognizes the critical importance of proper construction management for all restoration projects. To meet that end, intensive construction management is provided by SWIM staff and SWIM's environmental consultants (Peninsula Engineering & Design, Inc. [aka Proctor & Redfern, Inc.], King Engineering and Associates, Inc., Greiner, Inc., and HDR, Inc.). In addition, comments are solicited from permitting personnel (FDER [FDEP], USACOE, SWFWMD, etc.) who are invited for site visits during construction. Due to the inherent nature of these projects, the flexibility of permit stipulations, and our understanding of ecological principles, each project is field adjusted to suit existing conditions. Projects are modified to capitalize on existing natural features, features which are not always discernible during initial plan development. The end results are projects superior to the original design due to (relatively) minor field modifications that enhance the site's productivity and maximize other project functions (e.g., stormwater treatment, aesthetics, etc.).

Post-construction follow-through also is important for project success. As specified in construction permits, projects are monitored for their effectiveness; since 1992, SWIM has conducted additional

monitoring inclusive of basic water quality analyses (i.e., temperature, salinity, dissolved oxygen, etc.) and sampling of fish and/or benthic populations; for some sites, monthly avifauna (bird) surveys are conducted by volunteers of the National Audubon Society. Lastly, as projects mature, SWIM staff and consultants continually evaluate a project's effectiveness, and, as feasible, take corrective measures to improve both "old" projects (i.e., already constructed and maturing) and designs/construction of new projects.

The following narratives summarize four of the 44 projects either completed or under development (information concerning these other projects is available from SWFWMD SWIM: Dr. Brandt Henningsen or Tom Ries, 813-985-7481, 800-423-1476, or Suncom578-22n2/2203).

Cockroach Bay - A Multi-Task Force Project

The enhancement/restoration of over 651 acres of publicly owned property is SWFWMD's number one priority project. The restoration parcel is located in the southeastern reaches of Tampa Bay, near the borders of Hillsborough and Manatee Counties. The property was originally purchased during the summer of 1991 by the Hillsborough County Environmental Lands and Acquisition Program for $2.1 million. Although about 150 acres are intertidal wetlands, the remaining 500 acres represent fallow and active farm fields and decommissioned shell pits ("Leisey Shell Pits'); significant portions of the tract are heavily infested with exotic Brazilian pepper and Australian pine trees. The watershed is primarily agricultural, with runoff draining (essentially) untreated into the estuary. In spite of watershed and estuarine impacts, Cockroach Bay is often touted as the "crown jewel" of Tampa Bay and is noted for its seagrass beds and fisheries production.

With over 11,000 acres of intertidal wetland habitats lost from Tampa Bay, the opportunity to perform large scale restoration projects is especially attractive. This project has involved considerable time and manpower to develop and begin implementation. With District SWIM staff heading the seventeen member Cockroach Bay Restoration Alliance (COBRA, a collection of representatives from federal, state, and local agencies/governments, public, and private entities), three subcommittees have spearheaded the cooperative, interdisciplinary development of three habitat strategies involving wetlands, uplands, and stormwater treatment. All project designs and implementations are driven by COBRA consensus. At a minimum, monthly meetings are held of the full COBRA and subcommittees. Preliminary project development began during June 1990, with intensive planning and implementation since May 1991.

The goals of COBRA for Cockroach Bay include: 1) provide a mosaic of habitats for wildlife; 2) improve water quality via stormwater treatment of agricultural runoff; 3) restore sheetflow across the peninsula to the estuary; 4) evaluate the effectiveness of the restoration and stormwater projects. The project has been divided into two main phases. Phase I (approximately 200 acres) involves the shell pits and associated agricultural lands in the northern reaches of the tract and the construction of a stormwater treatment system in the southeastern portions of the tract. Phase II involves the remaining 300 acres of uplands and transitional/high marsh wetlands.

A total of about $1.8 million has been garnered for construction of Phase I; estimated costs for construction are as high as $2.2 million. To date, $850,000 of SWIM funds have been dedicated to the Cockroach Bay project. In addition, the project has been awarded two federal grants. Application for grant #1 was a collaborative effort of the SWIM program of the District, the Florida Depart-

ment of Natural Resources (now merged with the composite Florida Department of Environmental Protection), and the Tampa Bay National Estuary Program (TBNEP); a grant of $300,000 was awarded from the federal Coastal America Program (CAP), the first of any monies ever awarded by this Bush program. In addition, in response to a joint application by SWIM and TBNEP, $400,000 has been awarded from the U. S. Environmental Protection Agency (Clean Water Act, Section 319h); the funds will be used for construction of specific stormwater treatment and wetland restoration components (Sector 6, southeast corner of the project). In addition, the District was awarded an additional $155,407 of Clean Water Act, Section 319h funds to evaluate the effectiveness of the stormwater treatment pond for treating agricultural runoff. Lastly, the FDER State Pollution Recovery Trust Fund currently is in the process of dedicating an additional (circa) $300,000 for construction expenses.

Other project activities include: 1) completion of all survey work necessary for site plan development; 2) mapping of existing habitats on site, with comparisons to original communities prior to alterations by man; 3) development and implementation of a water quality monitoring program to evaluate water quality before and after project construction (paid for, in part, by Hillsborough County); 4) in-house design and implementation of a fisheries research study to evaluate fisheries utilization of the site before and after project construction; 5) clearing of exotic vegetation from large portions of the tract, with ongoing, incremental poisoning (via herbicide) of the remaining exotic populations (conducted by District crews and from personnel from Hillsborough Community College being funded via a grant from FDEP's Pollution Recovery Trust Fund: total grant $99,000; 6) design and construction of upland test plots of four different habitats (note: plants installed via volunteers and free mulching services were secured from a local contractor; Brazilian pepper and Australian pine tree mulch was recycled and used for upland test plots);); 7) installation of additional upland test plots using "salvage" or transplant materials from upland areas destined for destruction due to development (in part, harvested and transplanted by volunteers, with supplementary funding and coordination provided by Lewis Environmental Services); 8) have almost completed the restoration of the saltern on site via exotic removal and removal of solid waste from the area (using volunteer labor and a grant from the FDEP Pollution Recovery Trust Fund); 9) finalized design and permitting of Phases la (northern reaches of tract, focusing on the southwest rock pit and adjacent areas) and lb (stormwater treatment pond and tidal creek, southeastern reaches of site); 10) resolved basic issues of major project designs for Phase 2 endeavors and have begun refinement of site plans for Phase 2 (uplands and freshwater wetlands); 11) established and are continually expanding an on-site nursery of upland and wetland plants for project construction; 12) completed a sediment study to evaluate nutrient and pollutant loadings of the three shell pits and agricultural fields of the site (i.e., components of Phase 1 construction); 13) have begun development of Phases lc and id plans (intertidal systems associated with the eastern-most shell pits; 14) have been negotiating with the U. S. Army Corps of Engineers to secure a grant from their Beneficial Uses of Dredged Material program to assist with Phases lc and Id. Construction of Phases la and lb is anticipated for fall 1995).

This ambitious project will represent one of the largest earth moving habitat restoration projects of its kind ever performed in the United States. Our proposed and developing project plans will provide a mosaic of habitats typical of estuarine/coastal environments while helping protect and improve water quality of Cockroach Bay. E.G. Simmons Park - A Cooperative Project with Hillsborough County

This complex, interdisciplinary 14 acre project represents the largest habitat enhancement/restora-

tion project ever performed for Tampa Bay; Phase I of the project was completed by December 1990. E. G. Simmons Park, located in southwest Hillsborough County, is a 336 acre park (103 upland acres, 233 wetland acres) created during 196869 by dredge and fill operations. Goals accomplished by the project were the enhancement of 5.8 acres of existing wetlands and the restoration of 7.2 acres of wetlands that previously had been lost due to fill operations (total: 13 acres of wetlands). A one acre island hammock also was created along with the 13 acres of intertidal and submerged wetlands. The project has provided habitats which previously were scarce or nonexistent in the park: low and high salt marshes, mud flats, tidal channels and pools, island hammock. A second component of the project was the strategic placement of two 48 inch diameter culverts which will allow improved water circulation, tidal flushing, and movement of aquatic life throughout the park's open water areas.

Project construction primarily involved two areas of the park, both sites having uplands and wetlands. Wetlands at each site were deadend finger canals, with depths ranging from 6-10 feet; baseline water quality measurements indicated little to no dissolved oxygen at mid- to bottom depths. Both wetland sites had narrow mangrove fringes, few to no littoral shelves, and unvegetated, silty bottoms. Both wetland areas were bordered by upland tracts dominated by grass/weed species and exotic vegetation (i.e., Brazilian pepper, Australian pine).

Prior to earth work, all native trees from project sites were transplanted to the island hammock or uplands fringing the project sites. Following removal of all exotic vegetation from both sites, 7.2 acres of uplands were excavated (approximately 60,000 cubic yards) to depths appropriate for shallow water or intertidal wetlands. Sand excavated from these uplands was used to fill the finger canals to depths also appropriate for shallow water or intertidal wetlands. Upon completion, each site was characterized by 1) retention of existing mangroves, 2) several persistent open water features, and 3) meandering tidal channels bisecting wide intertidal marsh platforms. Over 51,000 plants of four wetland species were planted throughout project sites.

This project was a cooperative venture by the SWIM Department of the District and the Parks and Recreation Department of Hillsborough County. District expenses were about $350,000, with the County providing the project site and about $10,000 of in-kind services.

Since December 1990, monitoring of the project has occurred on a quarterly basis, with fisheries sampling conducted monthly since March 1992. As noted in FDER (FDEP) monitoring reports, the project has been very successful, with coalescence of plant material occurring throughout most of the site within 10 months of planting. Site monitoring has revealed many native plant species have colonized the site. Animal use of the site is widespread, inclusive of benthic species (e.g., angel wing bivalve [Cyrtopleura costata], fish, avifauna, raccoons, and bobcat. Seagrasses (i.e., widgeon grass [Ruppia maritima]) have begun to colonize tidal channels.

Several problems on site were noted during 1991-92, and remedial actions are being planned to correct these situations. Several patches of side slopes (leading to high and low intertidal marshes) did not develop good grass cover after hydroseeding; as a consequence, several of these spots have developed minor erosional problems. A second problem has involved erosion around the mouth of a 48" diameter culvert that was installed to improve tidal flushing of the park's open water basin; consequently, the opening of the culvert has become partially blocked, significantly reducing water flow. Both of these problems were addressed during summer 1993.

In addition, a Phase 2 project was implemented during the summer and fall of 1993. Phase 2 involved the installation of an additional culvert at one end of one of the project sites, thereby improving tidal flow through the site and to an adjacent open water basin. In addition, supplemental hammock plants were installed for the one acre island that was constructed as well as along the tops of banks surrounding the 13 acres of wetlands.

This project was and will continue to be a cooperative venture by the SWIM Department of the District and the Parks and Recreation Department of Hillsborough County. District and County crews and volunteers performed all of the Phase 2 work and all of the corrections of Phase I problems.

N. E. McKay Bay - A Cooperative Project with the City of Tampa

This enhancement/restoration project was completed by March 1991. The project was performed on the northern four acres of a 28 acre parcel owned by Hillsborough County but leased for management purposes to the City of Tampa. The parcel, often referred to as the Northeast McKay Bay Tract, is located in the northeast corner of McKay Bay, north and adjacent to the Tampa By-pass Canal (Palm River). The parcel receives stormwater drainage via the 43rd Street outfall. Goals met by this enhancement/restoration project include: 1) removal of exotic vegetation (i.e., Brazilian pepper); 2) adjustment of elevations and creation of a meandering tidal creek bordered by wide intertidal marsh platforms; 3) provides treatment of stormwater prior to discharge to the bay; 4) improvement of tidal flushing of semi-isolated open water and vegetated wetlands.

Prior to restoration, the project site was dominated by exotic vegetation and harbored a straight drainage ditch that conveyed stormwaters from the 43rd Street outfall to the bay; few to no littoral shelves were present in the ditch although several pockets of native leather ferns and sabal palm trees were scattered along the ditch's length. During construction, over 8500 cubic yards of sediments were deposited in District owned spoil sites, and over 10,000 plants of three wetland species were distributed throughout the wide intertidal marsh platforms constructed along the length of the created tidal creek. Two upland hammocks were created and all leather ferns were transplanted to or retained in preserve areas.

This project was a cooperative venture between the SWIM Department of the District and the Sanitary Sewers and Parks Departments of the City of Tampa. The City of Tampa contributed $20,000 of the $115,000 needed for the project.

Since completion of the project, the City of Tampa has been responsible for exotic maintenance and submission of permitting monitoring reports. The project has proven very successful. Marsh coalescence occurred within eight months of planting. Many volunteer native plant species have colonized the site (inclusive of widgeon grass [Ruppia maritima] colonizing a tidal channel), and wildlife use appears widespread; various avifauna, reptiles, fish (e.g., anchovies, juvenile herring and snook), and mammals (e.g., raccoons) have been observed on site. Fisheries studies have been underway with monthly sampling since March 1992.

ANNEX VI - COUNTRY REPORTS

SDAC DRAFT COASTAL POLICY PROCESS
ISSUE PAPER

COASTAL MANAGEMENT ARRANGEMENTS IN AUSTRALIA

Prepared by:

Karen Anutha
Coastal and Marine Program, DELM

INTRODUCTION

This paper provides a broad overview of the current status of coastal management arrangements in Australian States, the Northern Territory and at the Commonwealth government (federal) level.

On the whole, coastal management is a State government responsibility through coastal policies or coastal management legislation. State and local government have responsibility for implementation. The Commonwealth Government has little on the ground coastal management responsibility but significant broad coastal management functions through international treaties and conventions, responsibilities in the Exclusive Economic Zone, trade, fisheries, defense, quarantine etc. Increasingly, all spheres of government are cooperating in coastal management matters. This cooperation had found a focus the recently established National Coastal Action Plan. At the same time a number of coastal management initiatives and activities at local level are being undertaken by local government around Australia.

LOCAL GOVERNMENT

The role of local government around Australia in coastal planning and management is interwoven with the responsibilities of a number of different agencies in each state. While local government has a planning responsibility for coastal areas throughout Australia, the way the role is exercised varies according to the extent coastal policy is legislated or is non-statutory. Despite variations, local government has a central role in the zoning of private land along the coast and the processing of development applications. In many instances local government owns substantial tracts of coastal land and manages areas of public land.

In a number of states, local government authorities have prepared coastal plans for local areas, often in association with the state agencies responsible for coastal management. These plans are generally strategic in nature and set out objectives and strategic actions for pressured coastal locations. As a rule they are implemented through the statutory planning processes and development approval processes available to local government.

Local government is becoming increasingly involved in regional strategic planning with councils cooperating across regions.

In relation to local government and coastal management most attention has been given to the planning functions of local government although their functions include a range of day to day management activities such as protection works, waste management, reserves management, access provision etc. For strategic objectives to be fully met it is this area of local government activity that will receive more attention in the future.

AUSTRALIAN STATES

New South Wales

The NSW coastal management system is based on a state-wide coastal policy which is implemented through a number of planning and environmental management instruments. Supporting documents such as coastline and estuary manuals and guidelines are also developed. A Coastal Committee comprising state and local government representatives has implementation and coordination functions.

The coastal policy is implemented in two ways: 1) Councils are required to take the provisions of the Coastal Policy into account when preparing Local Envted that the basic 4 elements of Australian coastal management sytems should be included in the Tasmanian system which are: a state-wide coastal policy, objectives based on ESD, a coordinating body and implementation through planning instruments.

Provision already exists for three of those elements and only the establishment of a coordinating body would be additional. Although a number of new coordinating bodies have been established in Tasmania as part of the new resource management and planning system none meet the specific requirements of coastal management. In a multiple agency and jurisdiction system coordination is the first requirement for integrated management.

Victoria

The Victorian coastal management system underwent major reform and is based on a Victorian Coastal Strategy, regional Coastal Action Plans and Coastal Management Plans. A Coastal and Bay Management Council comprising state and local government as well as industry and community representatives, and Regional Coastal Boards have been established through new legislation.

Implementation occurs through a one-stop shop that provides coordinated approvals and through the Minister for Planning having planning approval function through local municipal planning schemes for Crown land with the consent of the Minister for Conservation and Environmen. Decisions are based on hierarchy of planning instruments which are integrated and incorporated into planning schemes. The legislation is binding on the Crown in all its capacities and also requires land managers to take the Victorian Coastal Strategy into account in carrying out a function involving land management as well as taking all reasonable steps to give effect to the Strategy.

Western Australia

A major review of the Western Australian coastal management took place in 1994. The review recommended that a state-wide coastal strategy be prepared that would be given effect through

regional strategic plans and local planning schemes and strategic documents.

A high level Coastal Zone Management Council is proposed (State and local government, industry and community) which is to be established as a Standing Committee. In addition the Council is proposed to undertake to develop a State Coastal Zone Management Strategy and to examine 3 other specifc issues relating to developments which straddle the land-ocean interface, coastal dune rehabilitation and community involvement in on the ground activities.

South Australia

The South Australian coastal management system focuses on coastal protection and is based on a Coast Protection Act 1972 and statutory Coast Protection Board comprising government representatives and technical experts.

Plans and policies developed by the Coast Protection Board are implemented through local government development plans under the Planning Act 1982. All developments located in the coastal zone are referred to the Coast Protection Borad for comment.

Queensland

The Queensland system for coastal management is being reviewed and will be based on special legislation and state and regional planning instruments.

The Coastal Protection Act, once finalised, regulates works and approvals for activities in the coast and will require the development of a State Coastal Management Plan and provide for the preparation of Regional Coastal Management Plans which are implemented by approving authorities such as the Minister or local authorities. Each Regional Coastal Management Plan identifies a number of control disctricts based on natural and human systems and processes, access requirements and tenure, interests in and rights to the land (inc. traditional Aboriginal and Torres Strait Islander rights).

A Coastal Protection Policy Advisory Council (State and local government and community) is proposed as a coordinating body.

Northern Territory

The coastal management system of the Northern Territory is based on the 1985 Coastal Management Policy which is implemented through Coastal Management Plans for areas under pressure. A review of the policy has been proposed as the current system is largely defunct.

A Coastal Management Committee (NT Government agencies, head of agency level) as well as a Coastal Management Technical Advisory Group (NT Government agencies, officer level) were established which are now defunct.

Tasmania

Tasmania is in the process of reviewing its first draft State Coastal Policy. The policy will be given effect as part of the State's resource management and planning system and introduces a new statewide mechanism which overrides local planning schemes. It is proposed that a coastal coordinating body be established with responsibility for overview and policy implementation. This body is likely to have government and community representation.

The State Coastal Policy will be binding on the Crown and be implemented through a range of existing statutes pertaining to the coast.
has A Commonwealth Coastal Interdepartmental Committee was established to cioordinate these functions. Commonwealth Coastal Policy was released in May 1995 following a two year national coastal zone inquiry. This agreement formed the basis for the new four year National Coastal Action Plan through which funding is directed at national priority issues in coastal management. A national technical advisory group will assist with the implementation of the program.

COMMONWEALTH
The Commonwealth has no coordinated coastal management function but a range of responsibilities in the coastal zone which are presently carried out under sectorally based portfolios. A Draft Policy for Commonwealth Responsibilities in the Coastal Zone has been developed and will be further considered once the Commonwealth Government has reached a decision on providing a substantial national funding package for coastal management as part of its 1995/96 budget process. As part of this process a Commonwealth Interdepartmental Coastal Committee has been formed whose function it is to develop a consolidated Commonwealth view on coastal matters.

The Commonwealth has conducted some 23 national inquiries relating directly or indirectly to coastal management, the most recent being the Resource Assessment Commission's National Coastal Zone Inquiry (1992/93). The majority of these Inquiries have found there to be a lack of coordination between the different spheres of government and the need for cooperative arrangements as well as dedicated funding.

Negotiations between all States, the Northern Territory and local government took place between 1993 and 1995 at which broad agreement on common directions for coastal management was reached.

instruments
Draft Policy for Commonwealth Responsibilities in the Coastal Zone

current status
negotiations with other spheres of government completed, subject to 1995/96 budget process

objectives
ESD Core Objectives:
- To enhance individual and community well-being and welfare by following a path of economic development that does not impair the welfare of future generations.
- To provide for equity within and between generations.
- To protect biological diversity and maintain ecological processes and life-support systems.

Coastal Zone objectives:
- to ensure that Commonwealth decisions are made in accordance with ESD principles;
- coordination to achieve integration of decision making within the Commonwealth sphere;
- to ensure community consultation and involvement;
- to recognise Aboriginal and Torres Strait Islander interests in the coastal zone;
- to advocate and facilitate the development of a national coastal zone strategy and agreed national principles for coastal zone management.

implementation
Sectoral functions would be guided or governed by the Commonwealth Coastal Policy and coordinated through a Coastal Zone Interdepartmental Committee.

coordinating body
A Coastal Zone Interdepartmental Committee (Commonwealth agencies)
role: To develop a Commonwealth Coastal Policy and to coordinate coastal management matters within the Commonwealth.

functions: ensuring the exchange of information across the Commonwealth on current and future coastal activities in order to incorporate relevant information into decision making, providing a forum for discussion in establishing common ground between agencies in approaches to the coastal zone,

facilitating discussion and feedback on new coastal initiatives at the Commonwealth level, providing a primary contact point for other levels of government and the community on coastal issues, particularly in regard to discussions on a national coastal zone strategy.

definition of coastal zone
The boundaries of the coastal zone extend as far inland and as far seaward as necessary to achieve the policy objectives, with a primary focus on the land/sea interface.

This definition applies to continental Australia and its external territories.

CONCLUSION

Although each State and the Northern Territory have different coastal management systems in place, most of which are currently under review, significant common elements exist. They include:

- a state-wide coastal policy or legislation
- coastal management and protection objectives based on ESD
- a coordinating body, generally in an advisory function
- implementation through planning instruments (inc. strategic and statutory plans or specific coastal management plans at regional or local level or both)

Less common but increasingly important are supporting materials such as guidelines, manuals or handbooks and educational materials.

For Tasmania's Draft State Coastal Policy process it is important to consider these common elements and to gauge which of those may be applicable and appropriate in the Tasmanian context. It is suggesach state. While local government has a planning responsibility for coastal areas throughout Australia, the way the role is exercised varies according to the extent coastal policy is legislated or is non-statutory. Despite variations, local government has a central role in the zoning of private land along the coast and the processing of development applications. In many instances local government owns substantial tracts of coastal land and manages areas of public land.

In a number of states, local government authorities have prepared coastal plans for local areas, often

in association with the state agencies responsible for coastal management. These plans are generally strategic in nature and set out objectives and strategic actions for pressured coastal locations. As a rule they are implemented through the statutory planning processes and development approval processes available to local government.

Local government is becoming increasingly involved in regional strategic planning with councils cooperating across regions.

In relation to local government and coastal management most attention has been given to the planning functions of local government although their functions include a range of day to day management activities such as protection works, waste management, reserves management, access provision etc. For strategic objectives to be fully met it is this area of local government activity that will receive more attention in the future.

CONCLUSIONInformation was compiled by:

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July, 1995
BRAZIL-STATE OF SAO PAULO
SOUTH COASTAL ZONE and VALE DO RIBEIRA (RIBEIRA's RIVER VALLEY
Status Report of Coastal Management Activities

(almost 16.000km2; shore line: 210km; pop.: 350.000; 23 municipalities; the largest remainder of the Atlantic Tropical Forest, State Protected Areas: almost 20% are in this region)
(Lacks to the Regional ICZM: Human Resources Information Centers at the Local Level, and Funding to Pilot-Projects)

Paul Joseph Dale
Sergio G. Vassimon
SP-Brazil, July 1995

(This is not an official/formal document}

1} The major coastal management issue in the "Vale do Ribeira" (CZ Sector, State of Sao Paulo}, is to begin an effective Sustainable Development Program, orienting the State and Local Governments and the population - how to grow in a sustainable way.

There are specific issues:
- The occupation of Dangerous, Protected and Unhealthy Areas/mainly by law wage population (habitation problem - ex.: mangroves, Parks);
- The low level of the sever destination and treatment/present on the urban localities (and with the occupation expansion sad the inadequate solid waste destination (basic sanitation problem);
- The lack of appropriate technologies to use the coastal resources ex.: oysters/Crassostrea; palm heart/Euterpe edulis Mart.; Wetlands Agriculture and Agroecology; other Forest Resources Management) and the low number of technicians Working with the CZM issue;
- Mining/the use of "land and sand banks", the landscape impact, the Ribeira river contamination and the use/formation of risk areas;
- The road system is inadequate,
- Fishing: reducing as an income and job source to the Traditional Fishermen. They are turning to other activities (mainly tourism and related services)/(cultural problem) and the general irregular practice of some Commercial Fishermen.

Coastal Management Activities:

-The Ecological-Economical Regional Zoning (1:50,000) is discussed and ready on the "Complexo Estuarino-Lagunar de Iguape e Cananeia" and on the "Vale do Ribeira" Sector it's being elaborated. This Zoning will help to adjust the general CZM law to this CZ Sector;

- Some Local Governments are starting the elaboration of the Municipality Guiding Plans using the abate mentioned Zoning

The C2 Information System was initiated on same issues: Ecotourism Socio-Economy, Forestry,

Fishing and Agriculture;

-Pilot-Projects: modifying the conventional Natural Resources Use System, mainly on Ecotourism, Agroecology, Basic Sanitation, Fisheries, Forestry, Technical Advisory for the "Vale do Ribeira" Mayer Consortium (CODIVAR) and Oysters management (with traditional fishermen);

-The formation of the "Ilha Comprida" State APA (Environment Conservation Area). It's a very fragile island. But, the tourism expansion created 250,000 plots of land. The state action to conserve this important ecosystem was done through the environmental laws;

-The CZ concentrates large portion of the Protected Areas of the States With financial help from the World Bank and from RFW/Germany, the State works to elaborate modern Management Plans for these areas and to define the complex land property system of the CZ;

-The start of the CZ Integrated Management between the States of Sao Paulo and Parana. This region represents the largest continuous remainder of the Atlantic Tropical Forest in Brazil, and It's associated ecosystems (and the associated cultures);

-This region (above mentioned) is crossed by the Mann road that Links the MERCOSUL to the Brazilian Southeast (BR-116). It demands a special planning to reduce the impacts and to capitalize on this situation.

3) The CZ is not being developed in a sustainable manner. The State is in the process, using the Education as a tool ("learn to teach and learn to do"), with the Zoning, Information System and the Pilot Projects, with the CODIVAR and some NGO's. It's necessary to execute an Integrated Management System (with the Federal: the Territorial Sea, the Fisheries, and the Federal Lands"/State: the Regional Planning/Local: the "Stake-Holders" - Levels/Governments)

Agenda 21 at Vale do Ribeira":
-The Policy elaboration towards the Sustainable Development;
-The Sustainable Use of the Soil Resources;
-Fighting against the deforestation {and erosion};
-Sustaining the Biodiversity and the Socio-Diversity (PROBIO)
-Promoting the Sustainable Human Occupation;
-Promoting and Protecting the Human Health (Itapitangui},
-Fighting against Poverty (Pilot-Projects};
-Protecting the Oceanic Resources (close to the CZ more productive},
-Sustainable Agriculture;
-The Partnership (also with NGO's).

Chapter 17/Agenda 21 - Impediments:

-Uncontrolled Urbanization and Tourism;
-Predatory Fishing;
-Human Resources on CZM/ Vale do Ribeira;
-Political Priority to CZM/Vale do Ribeira;
-Environmental Education; and
-Appropriate Technology and Science.

The Present State of Coastal Management in Cameroon

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INTRODUCTION

The Republic of Cameroon is located in the Gulf of Guinea on the Atlantic coast of West Africa and has a coastline of close to 360km lying between latitudes 2°20'N to 4°40'N and longitudes 8°40'E to 10°E. This coastline is characterized by extensive mangrove forests, with alternating sandy beaches (Folack 1994).

The coastal zone in Cameroon has a high socio-economic value and is rich in natural resources such as shrimps, fish stocks and petroleum deposits. It is also the industrial heartland of the nation with more than 80% of manufacturing industries located in Douala and other coastal towns. Many agro-industrial corporations are located along the coastal zone, which is generally more populated than the interior parts of the country.

The coastal zone in Cameroon is confronted with a number of management issues, some of which will be discussed in this short status report. While some of the issues are natural phenomena, others are a direct result of human activities on the marine environment.

COASTAL MANAGEMENT ISSUES IN CAMEROON

i)

iv)

A number of issues require urgent attention if the coastal zone in Cameroon is to be managed rationally for sustainable exploitation of its vast resources. Some of these issues are as follows:

Coastal erosion: Coastal erosion is quite remarkable along the Cameroon coast. The generalised inward drift of the coastline has been noted by many workers (e.g. Hori, 1977, Zogning and Kuete, 1986; Kuete 1988; Merin and Kuete, 1989). Coastal erosion has drastic effects on coastal vegetation. In fishing villages, dwelling houses and other infrastructure are particularly vulnerable. One remarkable example of coastal erosion along the Cameroon coast is the case of Bota Island near Limbe which used to be inhabited by a small native population of fishermen. Erosion continued to wash away the island, so that its size continued to decrease. As the situation deteriorated the government was forced to evacuate all the natives and resettle them on the mainland.

ii) Sedimentation: High sedimentation rates are particularly noticeable in estuarine areas where rivers

bring in material into the sea. The Douala port, at the mouth of the Wouri estuary, is very vulnerable to this.

iii) Conflicts within the coastal zone are common between artisanal and industrial fishermen who do not respect their respective fishing zones as stipulated by the law in force.

Free and uncontrolled logging in mangrove forests for firewood and building introduces drastic changes on the ecosystem.
v) Corals are freely harvested for sale as souvenirs in the Limbe area without regard to ecological damage.

vi) Coastal populations generally dump domestic and other wastes including hard objects into the sea. This constitutes a stress to the ecosystem.

SOME COASTAL MANAGEMENT ACTIVITIES

Generally, coastal management activities in Cameroon are still very disorganized and need urgent coordination from the Government and/or from appropriate non-governmental organizations. Some of the activities include the following:

i) Yearly dredging of the Douala port to remove sediment and improve navigability for the shipping industry.

iv)

ii) Chemical fishing and fishing with explosives is banned, but supervision of the coastal zone is not very efficient and it is possible that this may be practiced on a minimum level in some distant creek areas.

iii) The Government has regulations in force concerning the exploitation of fisheries resources:

only specified mesh sizes of nets are allowed Industrial fishing trawlers are not allowed within two nautical miles of the coast Trawlers of more than 250 GRT (Gross Registered Tons) are banned from fishing in Cameroonian waters All fishing activities must be officially authorised

The pressure on fish stocks usually decreases towards the end of year (Nov-Dec) when most foreign fishermen (80% of total national count) go home for end of year festivities. This has the effect of allowing stocks to regenerate. It is important to note, though, that most of the regulations in the fisheries sector are not respected for many reasons.

Many coastal fishing villages are confronted with the drastic effects of coastal erosion. Unfortunately, no concrete measures are being taken at all to address this serious problem.

CONCLUSION

This brief report has only presented a few of the problems that need urgent attention in the coastal zone in Cameroon. Many coastal management activities are presently not well coordinated. It is important that the Government, through the appropriate ministries should organise and in effect

spearhead integrated coastal zone management (ICZM) activities in Cameroon. Perhaps the first thing to do would be to carry out mass education programs on the media about the objectives of ICZM so that coastal populations become aware of the importance of any activities that may be undertaken later.

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Summary of the National Coastal Zone Management Program

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The coast line of China mainland is more than 18 000 km, and the coast zone is characterized with high dense population, concentrated cities and developed economy, while the elevation of some cities are only 1.5-4.0 meters. The Chinese Government has paid great attention to the coastal zone management. But anyway, due to the irrational exploitation of the coastal zone in past decades, serious ecological degradation is induced. The integrated coastal zone management is urgent to be strengthened in China.

I Achievement of the coastal zone management

1 Establishment of Institutions

In order to manage effectively the protection and development of the marine and coastal zone resources, China has set up central and local government authorities responsible for the coastal zone management. The State Council authorizes the State Oceanic Administration which was established in 1964, to be in charge of the coastal management. The other sectors, such as Ministry of Agriculture, Ministry of Communications, Ministry of Light Industry, and etc. have, under the coordination of the State Oceanic Administration, their own responsibilities for the related coastal zone management such as fishery, port construction, salt production and etc.. Local Governments have also set up similar institutions as Central Government, responsible for the coastal zone managements within their own administrative regions under the guidance of Central Government.

2 Formulation and Promulgation of Laws and Regulations

The National Congress has formulated and promulgated 22 laws or regulations related to the coastal management, including The Marine Environmental Protection Law, Fisheries Law, Marine Traffic Safety Law, Regulations concerning the Dumping of Wastes at Sea, Regulations Concerning Prevention of Environmental Pollution by Ship-breaking, and etc.

The Local Congress have also formulated and promulgated a series of local laws or regulations related to the coastal zone management.

The most important law in this regard, The Coastal Zone Management Law has now being drafted.

3 Survey of Resources and Environment of Coastal Zone

(1) From 1980-1987, State Science and Technology Commission, State Planning Commission, State Oceanic Administration, together with other 12 Central Government Agencies and Local Governments conducted the survey of resources and environment of the coastal zone with the area of 350 000 km2.

(2) From 1989-1992, the Central Government Agencies and Local Governments conducted the survey of the resources and environment of 6500 islands, each of which is more than 500 m2.

(3) The Central Government and Local Governments, with support by France and USA, conducted the survey of resources and environment of estuary delta, including Yellow River Delta, Yangtze River Delta and Pearl River Delta.

4 Establishment of Natural Marine Reserves

China has established national and local natural marine reserves, including 7 national marine reserves and 6 local marine reserves. The protection ranges cover ecology, fish, mangrove, seashore, coral reef, and etc.

5 Formulating Sustainable Development Strategy of Coastal Zone

(1) Following the UNCED, Chinese Government launched the formulation of China's Agenda 21 in accordance with Agenda 21 adopted in Rio UNCED. The China's Agenda 21 has been formally approved by the Chinese Government, which will act as a national strategic document to guide the Central Government and Local Governments to formulate their economic and social development plan and strategy. In chapter 14 of China's Agenda 21, a specific programme area is : F. Sustainable Development and Conservation of Marine Resources. This programme area includes the sustainable development strategy of coastal zone.

(2) The State Oceanic Administration is now formulating China's Marine Agenda 21 which will be the sectoral document for sustainable development in the field of marine.

II Problems and Countermeasures

1 Problems

(1) Lack of the effective comprehensive coordination at national level for the coastal zone management

The current management system for the coastal zone management induces conflicts between the sectors, central and local authorities on the development and protection of the coastal zone. As the results, irrational exploitations of coastal zone often take place. And the coastal areas can not be developed in the sustainable manner.

(2) Lack of the Sound Integrated Coastal Zone Management Law or Regulations

Even though China has promulgated a lot of laws or regulations related to coastal zone managements, the lack of the most important law in coastal zone management , integrated coastal zone management law, brings about a lot difficulties in integrated coastal zone management in a sustainable manner.

(3) Lack of Technologies and Sufficient Finances

A. Lack of the technologies for integrated coastal zone management and planning, such as GIS, database, and large scale topographic map, and etc..

B. Lack of the technologies for the sound utilization and exploitation of coastal zone in sustainable manner.

C. Lack of sufficient finances to support the integrated coastal zone management, such as, institutional building, personnel training, information collection and dissemination, and etc..

2 Countermeasures

(1) Strengthen the capacity building

A Strengthen the institutional building and effective coordination at national and local level for the integrated coastal zone management.

B Formulate and promulgate the integrated coastal zone management law or regulations.

C Improve the personnel capacity for the integrated coastal zone management by training.

D Strengthen the national integrated coastal zone management plan to avoid the irrational utilization and exploitation of coastal zone.

(2) Improve the science and technology to promote the sustainable development of coastal zone.

(3) Develop the international cooperation to co-exploit the coastal zone in the sustainable manner.

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HONDURAS

COASTAL MANAGEMENT ACTIVITIES

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1. STATE OF COASTAL RESOURCES

Honduras has both a south coast on the Fonseca Gulf and a north coast on the Atlantic. In addition, the Bay Islands, located off the north coast are the center of the lobster and shrimp industry and attract thousands of sport dives due to presence of a spectacular coral reef.

Unfortunately, the estuaries, and mangroves of both coasts are suffering a degradation process due to over-exploitation, contamination, use of mangrove for firewood, clearing of mangrove for shrimp culture, erosion and sedimentation. The Gulf of Fonseca is being seriously threatened due to the shrimp farm boom and contamination from the use of agrochemicals in non-traditional export crops like cantaloupe.

On the Bay Islands, the overfishing by the shrimp and lobster fleet has caused lower yields. In addition, contamination from land-based activities including tourism is affecting the health of the coral reef and the sea grass beds.

Honduras is in the process of developing programs to combat degradation and obtain sustainable development in the coastal areas.

2. COASTAL MANAGEMENT ACTIVITIES

2.1 ACTIVITIES IN EXECUTION

2.1.1 Bay Islands Environmental Management Program

This is a 5 year program financed by a $18,000,000 loan form the Interamerican Development bank. It includes four main components:
- natural resource management (including a marine park and coral reef monitoring)
- cadaster
- sewage treatment, solid waste management and potable water
- institutional strengthening

2.1.2 Hog Islands Investigation Station

The Smithsonian Institution has established an investigation station on one of the cays in the Hog Islands which will monitor coral reef health and work with Hondurans on the management of the recently declared marine park.

2.1.3 Environmental Development in the Gulf of Honduras

This is a cooperative effort of Belize, Guatemala and Honduras which will try to regulate activities and promote sustainable development in the Gulf.

2.2 PROPOSED ACTIVITIES

2.2.1 Preparation and Execution of a Management and Development Plan for the Gulf of Fonseca

This plan has been presented to DANIDA, the Danish Development Agency, by the governments of El Salvador, Nicaragua and Honduras for possible financing.

2.2.2 Creation of a National Coastal Management Committee

At the present, an executive decree is being prepared to create a National Coastal Management Commission which would be formed by representatives from the government, from private enterprise and NGO's and local inhabitant's.

STATUS REPORT OF COASTAL MANAGEMENT ACTIVITIES IN INDIA

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The Department of Space, at the instance of Ministry of Environment and Forests, have launched a project to map the entire country's coast lion on 1:250,000 scale. The project was executed by the space Applications Centre with the participation of various agencies, viz., Gujarat Engineering Research Institute, Vadodara, Gujarat Ecological Education and Research Foundation, Gandhi Nagar, Maharashtra Forest Department, Thane, National Institute of Oceanography, Dona Paula, Karnataka Association for Advancement of Science Studies, Trivandrum, Institute of Remote Sensing, Madras, Geography Department of Andhra University, Waltair, Orissa Remote Sensing Application Centre, and Bhubaneswa. The Department of Space with the participation of various State/Central agencies has completed shorelines change mapping on 1:250,000 scale and coral reef mapping on 1:50,000 scale for the entire country is nearing completion. Progress in this direction is planned by taking up land use mapping for coastal regulation zone on 1:25,000 scale and wet land/ landform and shoreline changes on 1:50,000 scale.

Future satellites in the Indian Remote Sensing Programmes will have resolution better than 10 mts. and middle-infrared band which will further enhance the capability of monitoring this vital environment and ultimately pave the way for better coastal management. The maps prepared thus will show various wet land/landforms (mud flats, beaches, splits, coral reefs, mangroves, palaeo-mudflats, deltaic plains and areas under erosion and deposition) on a 1:250,000 scale.

Classification accuracy for the wet land map an control accuracy for shoreline-change maps have been assessed. Users workshops have been organized to appraise various users about the possible utilization of such maps.

In view of the extensive survey of coastal zone for various activities, it is but necessary to classify into preservation, conservation, utilization and development zones. This is one of the landmarks towards a rational coastal zone management.

The data collected in the field of coastal management during special programmes carried out by Indian agencies and organizations is as listed below:

Name of Organization	Prime objective of the cruise
1. Space Application Centre Ahmedabad	Developed a classification system adopted for coastal wet land mapping(1:250,000 scale)
2. Gujarat Ecological and Educational Research Foundation, Gandhi Nagar	Wet land mapping of Gujarat by using LANDSAT TM/IRS, LISS II, FCC on 1:250,000 scale

3. National Institute of Oceanography, Goa.	Shoreline change mapping by using the satellite data of 1975 and 1985-86 compared
4. Maharashtra State Forest Department, Thane	Investigation on mangroves and corals
5. Karnataka Association for Advancement of Science Bangalore	Demarcations of erosional and depositional areas
6. Centre for Earth Science Studies, Trivandrum	Mapping of the reclaimed land (underdeveloped and developed)
7. Institute of Remote Sensing Anna University, Madras	Wet land/landform mapping of Tamil Nadu
8. Department of Geography, Andhra University, Waltair	Shoreline changing mapping (1973-1988)

THE STATUS OF INTEGRATED COASTAL ZONE MANAGEMENT(ICZM) IN KENYA

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Following the Arusha resolution on ICZM in Eastern Africa including the Island states of April, 1993, Kenya through the initiative and by mandate of the Coast Development Authority (CDA) started a study of Integrated Coastal Management issues in October, 1994 in a pilot site in Mombasa - the Nyali-Bamburi-Shanzu area. Through on-site training and evaluation sessions with other local collaborators in the study exercise from Fisheries Department, Kenya Marine and Fisheries Research Institute, Kenya Wildlife Services, the Mombasa Municipality and the Kenya Hotelkeepers and Caterers Association by professionals, from the University of Rhode Island through the efforts of United States Agency for International Development, the United Nation's Environment Programme and Food and Agriculture Organization, key issues that needed address in evolving ICZM in the Kenya coast were identified by this multi-sectorial team based on the experience from the study site.

Urbanization, decline in fisheries production and in water quality, erosion of the shoreline, degradation of coastal ecosystems and use conflicts were been identified as the main issues that need to be addressed. Various possible causes for these issues were advanced in the process that were pertinent to the issues. Confirmation and clarification of the issues was further effected in a stakeholders' workshop that was held in June, 1995. From this collaborative team effort, a strategy document is being compiled that will indicate both the national and the local frameworks that need to be developed to make the ICZM, Kenya, an integral part of the national development agenda. The strategies spelt in the document will be presented in a national workshop in November, 1995, in order to establish consensus as to the strategies to be adopted as a national policy for the country ICZM.

In the meantime, some demonstrations of ICZM and awareness activities have been planned in the study site that will be used to show the public and the stakeholders the definite benefits, both in short and long run, of applying certain management techniques that are relatively cheap and involving as many concerned citizens as possible. In this effort, institutional collaboration between government and private stakeholders is emphasized. This on-site involvement of partners in the development of ICZM will be demonstrated for the first time in Kenya as so far development has been effected sectorially. It is then hoped that the involvement of the all concerned citizens in coastal management will in effect evolve a sustainable programme.

Further training and exposure in ICZM concepts and participation is also going on. So far, through the one year effort, 3 Kenya nationals have received training in ICZM in the University of Rhode Island, Thailand and in Canada. The Kenyan experience from the study site was shared by the author at an international training workshop as a case study at Tampa, Florida, U.S.A in July 1995. A similar presentation is projected for the African Oceanographic group in Congo, in October, 1995. All these experiences and the adopted national strategies will be presented at a follow-up ministerial ICZM conference in Seychelles in June, 1996.

This effort is hoped to become part of the Eastern and possibly Southern African ICZM programme in future. It is also appreciated and hoped that international sponsors will continue to support the Kenyan ICZM initiative in capacity building, international exposure and implementation of the national strategies that the national team is putting together.

INTEGRATED COASTAL ZONE MANAGEMENT IN NIGERIA.

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The Nigerian coastal zone is highly dynamic and lowlying The coastal zone is composed of barrier-lagoon systems, mangroves swamps and sandy to muddy shoreline. Coastal changes which are very dominant and degrade the coastal areas include coastal erosion, siltation, deforestation including loss of mangroves and wetland, salt water intrusion pollution and subsidence. Like most coastal nations, Nigeria is faced with serious ecological problems as a result of these changes. These changes are occurring rapidly due to natural forces and anthropogenic activities employing conflicting approaches to coastal resources exploitation and management, as well as rapid population growth in the coastal areas. Though, Nigeria is yet to implement a well articulated Integrated Coastal Zone Management Policy, the Federal Environmental Protection Agency which is responsible for ensuring sustainable management of the Nigerian environment (including the coastal areas) and has taken tremendous strides in recognizing the importance of management of the coastal zone. Agencies that have mandates that hinge on coastal changes include the Nigerian Institute for Oceanography and Marine Research, The Nigerian Conservation Councils the Federal Ministry of Works and Housing and other Universities and non-governmental agencies.

COASTAL MANAGEMENT ISSUES FACING NIGERIA

The process of setting objectives, planning and implementation of a coastal zone management plan involves the understanding of issues that affect the coastal zone. These issues among others are:

(a). Lack of awareness that coastal zone resources need to be sustainably managed due to interactions of different environments and other anthropogenic activities.

(b). The paucity of data and information on coastal zone processes, Such data as climate change, coastal erosion, salinization of groundwater, pollution, deforestation and other related coastal zone problems and the processes that control them are not yet well studied and comprehended.

(c). Lack of human capacity and infrastructure : Nigeria being a developing nation is presently having economic problems. It is finding it difficult to provide infrastructure and training for personnel in the different areas of the implementation of
coastal zone management policy

(d). Lack of coordination between agencies with different stakes in the coastal zone.

(e). Inconsistent regulations and tools for enforcement.

(f). Lack of funds to implement the elements of ICZM

CONCLUSION

In Nigeria the coastal zone constitute an important economic nerve centre for the nation. However conflicting uses of coastal resources as well as natural forces are causing wide spread coastal degradation. Though the Federal Environmental Protection Agency (FEPA) is saddled with the task of enforcing environmental policies, there is yet any ICZM plan in place. ICZM programme in Nigeria hence calls for collective efforts of concerned agencies and institutions in developing management measures to resolve resource use, preservation of coastal areas and provide adaptive measure for the adverse effects of climate change and resulting coastal changes.

INSTUTUTO DEL MAR DEL PERU
IMARPE

Daniel Mariscal Galiano
September 134, 1995

01. Which are the coastal management issues in Peru?

- human settlements density and distribution - the decrease of the economy in small towns and agricultural communities together with the excessive centralization and the reduction of the economic growth of large cities have caused an increase in the migration to most of the coastal urban centers. According to the 1993 census, more than a half of the population of the country (52.21% of 22 million inhabitants) live along the coastal zone.

there is an excessive growth of population in urban centers, as a result of this migration, causing overcrowding and bad living conditions. The government has just approved a law, supporting the family planning more effectively, including voluntary sterilization and also it will initiate a new law of decentralization, to improve the current law which has proved inefficiency.

- the industrial activities generate great amounts of organic and inorganic waste that pollute sea and continental waters, even coastal areas. there is no treatment of sewage waters stemming from the towns of one hundred thousand inhabitants or more, living in ten coastal cities.

the large fishing industry distributed along the coast produced vast amounts of organic waste as a result of solid residues and unprocessed fish residues evacuated into the sea, Peru catches eight to ten million tons of fish annually, for the production of fishmeal. The ministry of fisheries has established a strict rule called “Plan de Adecuacion Al Medio Ambiente (Pama)”, that sets limits of pH, dissolved solids and grease contents in dicharges generated by the plants, and it also determines a deadline for closing, in case of nonfullfillment of requirements.

due to barrenness of the Peruvian coast, the protection of the living resources of the sea, islands and intratide and continental areas is very important. biological diversity in coastal and maritime zones is wide and varied. They are more than four hundred fish species, nine hundred mollusks, four hundred crustaceans and hundreds of sea-birds, sea-mammals and others.

the intervention of the activities of man and the sudden changes of interaction between ocean and atmosphere like the Nino phenomenon put pressure on resources. So, it is necessary to carry out further research. Fortunately, the current fisheries law, promulgated after the Rio Convention, has included its previsions to protect the biomass of the sea, since it establishes scientific basis for the management decision in the fisheries regime.

- protection on special environments - with reference to the special environments, the mangrove forest of Tumbes is increasingly being used and its original surface has been reduced in 20 to 30%, to be used as shrimp tanks (Penaidae). Mangrove forests are exclusive to Peru, so their protection and repopulation must be continued with increased efforts. There are 350,000 hectares reserved as national parks, along the coastal zone of Peru in Tumbes, Virrila, Lachay, Paracas and Mejia.

the Tumbes forests national sanctuary of Peru was created in 1988 with 2,972 hectares and protects plant formations and varied fauna exclusive to our country.

it is also necessary to monitor and improve the management of islands with varied fauna (Medio Mundo, Chilca and other islands), and coastal zones subject to erosion and used as recreational areas.

there has been created a national commission of environment protection (CONAMA) which should handle these issues.

02. Which activities on integrated coastal management have been carried out in your country?

- a national program on integrated coastal management does not yet exist. The Instituto del Mar del Peru and the hydrographic office are coordinating to start this type of program.

A) the fishing sector is one of the most developed. The general fishery law was updated in 1992, and refers to the sustainable management of resources and fishing industry, based on scientific research carried out by an specialized institute using two research vessels and seven coastal laboratories.

the general fishery law and other legal devices regulate proceedings and exploitation levels and environmental protection, as they refer to control over fishmeal factories gases and organic residues. this general fishery law has rearranged artisanal fishery giving them support and protection by establishing an exclusive fishing area and an appropriate infrastructure for the unloading and handling of fish.

other legal devices exist to protect around four to five million guano birds which now inhabit thirty islands and capes, as well as marine mammals and turtles.

B) natural environment protection the “Paracas Reserve” of 348,000 hectares was created years ago and it is a protected coastal zone where reproduction of the main native species takes place. In Paracas we find two types of sea-mammals, different seabirds, such as the “golondrina de tempestad” that only reproduces in this habitat. South American sea-lion distribution is located on northern extreme of this reserve.

it also has semi-closed lagoons with a variety of fishes, crustaceans mollusks and interesting geological structures, such as islands and sandy and rocky beaches as well as prehispanic culture architecture.

migrating birds from the northern hemisphere prefer Paracas. They are franklin sea-gulls, “chorlitos playeros”, others from the Antarctic and highland sea- gulls and Andean condors.

03. Are coastal zones managed sustainably?

-as can be seen in numerals 1 and 2, sustainable management of coastal areas has not been achieved yet. excessive population, damage to marine and coastal areas and the fragility of the ecosystem bear increasing pressure over resources.

04. What progress has been achieved with regard to the application of Agenda 21 ?

a) better governmental regulatory tools b) public awareness about marine and coastal protection issues c) application of agenda 21 principles through the creation of a general fishery law d) government and public awareness about the need of scientific research on living resources and the magnitude of marine pollution e) media awareness about the need of timely and precise reports

05. Which do you think is the main obstacle in the application of Agenda 21 Chapter XVII ?

a) lack of interactions and interdependence among the different sectors involved in coastal zones management

b) lack of experts on interdisciplinary fields who may help to design and execute integrated coastal management projects and programs

c) lack of funds to obtain required data to process and interpret and to take measures to preserve, correct, reestablish and recover damaged areas.

d) lack of a top level executive action, even though there is a high level coordinating commission.

at a regional level, there is an "action plan for the protection of the southeast pacific marine environment and coastal zones". One of its members is Peru. This organization has been working for ten years and lately it has provided national reports on critical areas, vulnerable resources and priorities regarding the coastal zone and marine environment protection.

the protocol for the conservation and management of the southeast marine environment and coastal zone has just gone into effect, signed on September 21, 1989, by Peru and other Southeast Pacific countries.

in general, at a regional level, a very good progress has been achieved in the planning phase which include the identification of the critical issues, the establishing of the objectives of the programs and the implementation policy and the design of the structures to be performed. however, the adoption and implementation phase has not been initiated, yet.

C. 13/09/95

COASTAL MANAGEMENT PROGRAMS IN THE PHILIPPINES

Since the 1970s, the Philippine Government has formulated programs and projects on coastal resource management. It received several funding support from multilateral funding institutions to pilot some concepts and management schemes on fisheries and mangroves. At present, the government is implementing the Fisheries Sector Program (FSP) that seeks to put into place coastal resource management schemes in twelve priority bays.

Mangrove reforestation is one of the components of FSP. Reforestation is being undertaken through contracts with private companies. But this scheme was modified when the Department of Environment and Natural Resources started implementing the Coastal Environment Program (CEP) in 1993. The CEP seeks to develop coastal communities as resource and environmental managers, hence, the task of mangrove reforestation was vested on them.

Under the CEP, twelve pilot areas, one in each geographical region, were selected to serve as demonstration sites for the implementation of a community-based coastal resource management. In each pilot area, a massive information campaign is conducted to inform the people about the Program. The people are then organized by a community organizing/community development officer. The community organizing phase takes one to three years. During this period, the community leaders are trained to manage cooperatives and people's organizations, and the community is assisted in developing management plan for its coastal area.

The Program has five components, namely: a) conservation and management of marine habitats, including establishment of coastal/marine protected areas; b) protection of endangered species; c) monitoring and control of coastal pollution;
d) inventory/assessment of coastal resources; and e) applied research and special projects.

Implementation of Agenda 21

The implementation of Agenda 21 is a priority of the government. Just right after the Rio Conference, the Philippine Council for Sustainable Development was established. The Council serves as the policy making body for the implementation of sustainable development. It is responsible for the adoption of the Philippine Strategy for Sustainable Development which served as the framework for the medium term development plans of the government.

Since its creation, the council has already formulated several policies and programs for implementation. It has participated in various fora on sustainable development, including

the hosting of International Experts Meeting on the Operationalization of Sustainable Development, International Experts Meeting on Persistent Organic Pollutants, A Gathering on Human and Ecological Security: A Conference on Population, Peace and Environment, and Meeting of National Councils for Sustainable Development in Asia and the Pacific.

Coastal Management Issues

Environment-related:

1. Over-exploitation of fishing grounds due to illegal fishing methods such as dynamite fishing, use of fine-meshed nets, cyanide fishing, and the use of other destructive fishing methods such as “muro-ami”.

2. Conversion of mangrove areas into other uses like fishponds, salt beds, settlement and industrial sites.

3. Destruction of coastal habitats such as coral reefs and seagrass beds due to destructive methods of fishing.

4. The recurring red tide phenomenon.

Institutional problems:

1. Institutional weakness at different levels of government, especially in the local government units to which the function of managing municipal waters was devolved.

2. On the part of enforcement agencies, lack of resources to effectively enforce existing laws, rules and regulations.

Rookery Bay National Estuarine Research Reserve
Naples, Florida USA

The Rookery Bay National Estuarine Research Reserve (RBNERR) is one of 23 estuarine reserves in a national system that represents a State/Federal partnership. Established by the U.S. Congress in 1972, the National Estuarine Research Reserve System promotes enhanced coastal management through estuarine research and education programs. RBNERR is located near Naples on the South-west coast of Florida. Approximately 108,000 acres of coastal wetlands and estuarine resources, representative of the West Indian Biogeographic Region, are managed by the State of Florida in support of the Rookery Bay Reserve. In 1990, the Florida Department of Environmental Protection developed a strategic management plan for Rookery Bay that identified priority resource issues, and specific programs and strategies to address them. Priority resource issues included alteration of surface water inflows, infestation by invasive exotic plants, associated with public consumptive use. By 1995 RBNERR had developed on-site programs supporting basic and applied research; public outreach and environmental education; and land acquisition, restoration and management.

Examples of recent projects include:

State-funded acquisition of over 3,000 additional acres of pristine coastal islands, watershed and significant upland buffers.

Development of a watershed management plan that identifies historic and current surface water inflows, with specific recommendations for restoration and management. The plan was used by State and local agencies to support funding for a 17,000 acre watershed acquisition project.

Establishment of a resource management team conducting habitat mapping and assessment, biomonitoring for pesticides, eradication of invasive exotic plants. restoration of altered surface water inflows and land acquisition planning.

Development of a Marine Science Curriculum Guide with field-tested high school and college students. The guide has been adopted by local school districts and by the government of Belize in support of coastal education.

Research on the recovery of mangrove-forested wetlands following Hurricane Andrew is being conducted by RBNERR research staff with funding from a federal grant from the U.S. Fish & Wildlife Service.

THE STATUS OF COASTAL ZONE MANAGEMENT IN SOUTH AFRICA

Introduction

The South African coastline, approximately 3000 km long, extends from the semi-arid Namibian coast in the north-west to the subtropical Mozambique border in the north-east. Varying climatic conditions have influenced human settlement and land use in the coastal zone.

Historically, much of the population and economic activity has been concentrated inland, but in recent years the coastal zone has been subjected to increasing development pressure. A high population growth rate, the repeal of apartheid legislation, urbanization and the demand for land for holiday housing and recreational development have contributed to increased development pressure in the coastal zone. Although economic growth and development are important, development has often proceeded in an uncoordinated, exploitative manner, degrading coastal resources and leading to land use conflicts.

A Coastal Zone Management Policy

One may argue that a national coastal policy is needed to provide a statutory basis for a coastal zone management (CZM) programme. Elements of such a policy already exist, such as principles for the conservation of coastal resources and guidelines for land-use planning and development which affect coastal land-forms. However, a legally binding national policy needs to be developed. Recent political developments have made the development of a widely supported national policy possible. The Department of Environmental Affairs and Tourism has initiated an inclusive, consultative policy formulation process. An attempt has been made to enable all sectors of society to participate in this process, including government, environmental non-governmental organizations, community based organizations representing civil society, business, labour and sport and recreation.

Strategies to achieve Coastal Zone Management

Some portions of the coast have acquired protected area status either below or above the high water mark. These areas have been declared marine reserves or nature reserves. Efforts to protect the terrestrial and adjacent marine environments have generally been uncoordinated and the responsibility of different agencies. Two coastal national parks incorporate both terrestrial and adjacent marine areas. Approximately 20 % of the coast falls within national parks, nature reserves or marine reserves.

Coastal land-use planning is largely the responsibility of provincial governments and local authorities. Land-use planning is subject to two provincial ordinances, arguably the most important legislation regulating coastal land-use. In terms of this legislation, zoning schemes indicate for what purpose land may be legally used. Unfortunately, many zoning schemes were compiled when awareness of environmental issues was limited. Should a landowner wish to use land for a purpose that does not conform with a zoning scheme, an application must be made to

rezone the land. Although administrative procedures exist to assess such applications, they are deficient in terms of accountability for decisions taken and the incorporation of environmental consider-

ations and public concerns in decision-making.

Pollution control measures exist to counteract oil spills at sea and the pollution of the marine environment from land-based sources. Oil from maritime activities and organic pollution from land-based activities are probably the most serious pollution threat to coastal ecosystems. Oil Spill Contingency Plans have been compiled to deal with pollution events in each coastal region. Pollution emanating from land-based activities is controlled in terms of the provisions of the Water Act (No. 54 of 1956).

There is a need for decision makers and the public to be informed about coastal issues. Numerous publications deal with coastal systems and aspects of CZM. However, this information reaches only a small percentage of the total population. The Department of Environmental Affairs and Tourism has initiated a Coastal Management Advisory Programme. Its aim is to increase awareness of the public, developers and authorities about the value of the coast, its special characteristics, sensitivity to certain activities and the need to use and develop coastal resources on a sustainable basis.

South Africa has an established coastal and marine science research programme. Research has focused primarily on the biophysical environment and little attention has been given to socio-economic, political and cultural considerations and their relevance to coastal management. Coastal managers recognize that greater emphasis needs to be given to research that attempts to understand and manage human-environment interactions. There is also recognition for the need to allocate more funds to research that is problem oriented and socially relevant.

Action required to achieve an integrated Coastal Zone Management Programme in South Africa

A key shortcoming in achieving the above has been the absence of a policy framework to guide CZM efforts. Such a policy framework would need to be supported by legislation and appropriate administrative structures for its implementation. Declaring and implementing a national policy would be facilitated by the promulgation of a separate Coastal Zone Management Act dealing with all matters relevant to CZM. Such an Act would help streamline the plethora of legislation pertinent to CZM and focus administrative responsibilities among the many authorities responsible for CZM efforts.

The large number of authorities responsible for different aspects of coastal zone management frustrates a co-ordinated approach to managing the coast. There is clearly a need for a co-ordinating agency at central government level vested with the necessary powers and adequately funded and staffed. The overall tasks of

this agency would be to facilitate the development of policy and strategies, to guide implementation of the overall programme, to ensure compliance with established policy once it is developed and to monitor the effectiveness of the entire programme. The existing coastal management office in the Department of Environmental Affairs and Tourism would need to be enlarged and its powers expanded in order for it to carry out these tasks.

Land-use planning is potentially the most effective mechanism for addressing environmental concerns. It is therefore imperative that the principles and procedures guiding planning and environ-

mental conservation efforts be better integrated and that improved understanding be fostered between these two disciplines.

Reference: Sowman, M.R., 1993. The status of Coastal Zone Management in South Africa. *Coastal Management*, Volume 21, pp 163-184

SRI LANKA COASTAL ZONE MANAGEMENT PROGRAMME AND SUMMARY OF WORK PROGRESS

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1. INTRODUCTION

Sri Lanka, a tropical island lying off the southern tip of India. With a land area of 6b,000 square kilometers, A coastline of 1,5B2 kill excluding embayments, offshore islands, inlets and lagoons, It encompasses a wide variety of coastal features and habitats Including 12,189 hectares of mangroves, 23,819 hectares of salt marshes. 7,606 hectares of coastal dunes, 11,800 hectares of barrier beaches and Spits, lagoons and basin estuaries, totaling an extent of 158,017 hectares and 9,754 hectares of marshes.

2. PROGRAMME FRAMEWORK

The framework for Sri Lanka's Coastal Zone Management Programme is provided through the Coast Conservation Department (CCD), first set up if l January 1Y78 as a Division of the Ministry of I fisheries and upgraded to the status of a Class "A" Government Department in 1983. The legal mandate for the programme is provided by the Coast Conservation Act, No.. 57 of 1981, Regulations under the Act gazetted in 1983 and the Coast Conservation {Amendment) ACT, No. 1 of 1989. The management framework is provided through a Coastal Zone Management Plan adopted by the Cabinet of Ministers in April 199O.

The Coastal Zone is legally defined 35 all "development activities" within this defined zone are regulated through 3 permit system. enforced by the CCD since the gazetting of the regulations under the Coast Conservation Act in September 1983. The definition of "development activity" brings within this regulatory system, residential, commercial and recreations structures, harbors, navigation channels, roads, bridges and railway lines, shoreline protective weak, sewage treatment facilities, aquaculture facilities, disposal of waste, dredging, filling, grading, mining, removal of sand, sea shells and vegetation, the breaching of sand bars and the removal of coral for research purposes. The penalties for contravention are either fines or imprisonment us Loath fine and imprisonment,

The CCD is empowered legally, as a part of the permit process, to call for Environmental Impact Assessments in respect of development activities which, in the- opinion of the Director of Coast Conservation, may have serious perverse environmental consequences,

3. PROGRAMME ACHIEVEMENTS (1978-1995)

The achievements of the programme during the seventeen years of its existence are listed by the CCD as,

(i) LEGISLATION ENACTED

Coast Conservation Act No. 57 of 1981

Gazetted Regulations of September 1983
Coast Conservation Amendment ACT Of 1988

(ii) COASTAL ZONE MANAGEMENT PLAN PREPARED

Regulatory procedure Management strategies for three key coastal issues-Erosion, degradation of coastal habitats, less and degradation of Archeological, Historical and Cultural sites

(iii) COAST EROSION MANAGEMENT PROGRAMME DEVELOPED

Magnitude of the erosion problem assessed Sites for structural interventions options identified (especially W and SW Coast) Improved techniques and enhanced database Sites for non - structural solutions identified

(iv) REGULATORY PROGRAMME FOR COASTAL DEVELOPMENT IMPLEMENTED

New development directed away from vulnerable areas
Setbacks for new construction
User conflicts reduced
Access to the beach ensured

(v) EXPLOITATION OF CERTAIN RESOURCES REGULATED (EG. SAND)

(vi) CORAL MINING BANNED

(vii) PROGRAMMED FOR MANAGEMENT OF COASTAL HABITATS INITIATED

(viii) DEFINED AND SUPPORTED RESEARCH AND STUDIES REQUIRED FOR MANAGEMENT

(ix) E.I.A. PROCEDURE FOR SITING COASTAL DEVELOPMENT

(x) INTER AGENCY COOPERATION ENHANCED

(xi) DANIDA - Preparation of CEMP
DANlDA - Implementation of CEMP
GTZ - Strengthening of CCD
USAID - Coastal Resources Management

(xii) PUBLIC EDUCATION AND AWARENESS PROGRAMME IMPLEMENTED

(xii) COASTAL ZONE MANAGEMENT Pi AN REVISED

(xiii) POLLUTION CHAPTER INCLUDED

(xiv) SPECIAL AREA MANAGEMENT AREA SELECTED